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A COMPARATIVE STUDY OF TWO APPROACHES TO THE TEACHING OF READING IN THE NATIONAL LANGUAGE.

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*EDUCATIONAL RESEARCH, *INSTRUCTION, *SPANISH, *TEACHING METHODS, LANGUAGE INSTRUCTION, READING INSTRUCTION, CHIAPAS, MEXICO

THIS STUDY WAS CONDUCTED TO EVALUATE TWO APPROACHES FOR TRAINING STUDENTS WITH A PREVIOUSLY ACQUIRED FOREIGN LANGUAGE ABILITY. THE TWO APPROACHES STUDIED WERE MONOLINGUAL AND BILINGUAL. THE HYPOTHESIS OF THE MONOLINGUAL APPROACH SUGGESTS THAT IT IS MORE EFFICIENT TO TEACH IN THE NATIONAL LANGUAGE. THE BILINGUAL HYPOTHESIS SUGGESTS IT IS MORE EFFICIENT TO TEACH STUDENTS USING A PREVIOUSLY ACQUIRED LANGUAGE. THESE HYPOTHESES WERE TESTED ON AN INDIAN POPULATION IN THE CHIAPAS MOUNTAINS OF SOUTHWESTERN MEXICO. OPPORTUNITIES ARE AFFORDED TO OBSERVE AND STUDY THE MONOLINGUAL APPROACH IN LOCAL FEDERAL AND STATE SCHOOLS WHICH TEACH IN SPANISH AND THE NATIONAL INDIAN INSTITUTE SCHOOLS WHICH TEACH IN TRIBAL LANGUAGES TZOTZIL AND TZELTAL PRIOR TO TEACHING IN SPANISH. INSTRUCTIONAL MATERIALS, CONTENT, AND TESTS VALIDATED FOR THE GROUPS STUDIED WERE PREPARED, PRESENTED, AND EVALUATED. IT WAS FOUND THAT STUDENTS TAUGHT WITH THE BILINGUAL APPROACH SCORED SIGNIFICANTLY HIGHER ON THE SPANISH READING COMPREHENSION TEST. FURTHERMORE THE PERCENTAGE OF PUPILS DESIGNATED AS LITERATE IN SPANISH BY THEIR TEACHERS WAS SIGNIFICANTLY HIGHER FOR THE BILINGUAL STUDIES. THE HIGHER PERCENTAGE OF LITERACY AND THE HIGHER LEVELS OF READING COMPREHENSION POINT TO THE EFFICIENCY OF THE BILINGUAL APPROACH. IT WAS CONCLUDED THAT THE FINDINGS SUPPORT THE THEORY THAT MEANING IS ESSENTIAL TO READING COMPREHENSION. THE FINDINGS WERE CONCLUDED TO BE SPECIFICALLY RELEVANT FOR THE GROUPS STUDIED WITH POSSIBLE APPLICATION FOR THE BILINGUAL APPROACH IN OTHER LANGUAGE ENVIRONMENTS. CAUSAL FACTORS CONTRIBUTING TO THE STUDY RESULTS ARE DISCUSSED WITH IMPLICATIONS FOR FURTHER RESEARCH. (WN)

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A COMPARATIVE STUDY OF TWO APPROACHES TO THE TEACHING OF READING IN THE NATIONAL LANGUAGE

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DEDICATION

This study is respectfully dedicated to

Albert and Eva Modiano

and

The Indians of the Highlands and all others

who struggle to make sense of our modern world

ACKNOWLEDGMENTS

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N. M.

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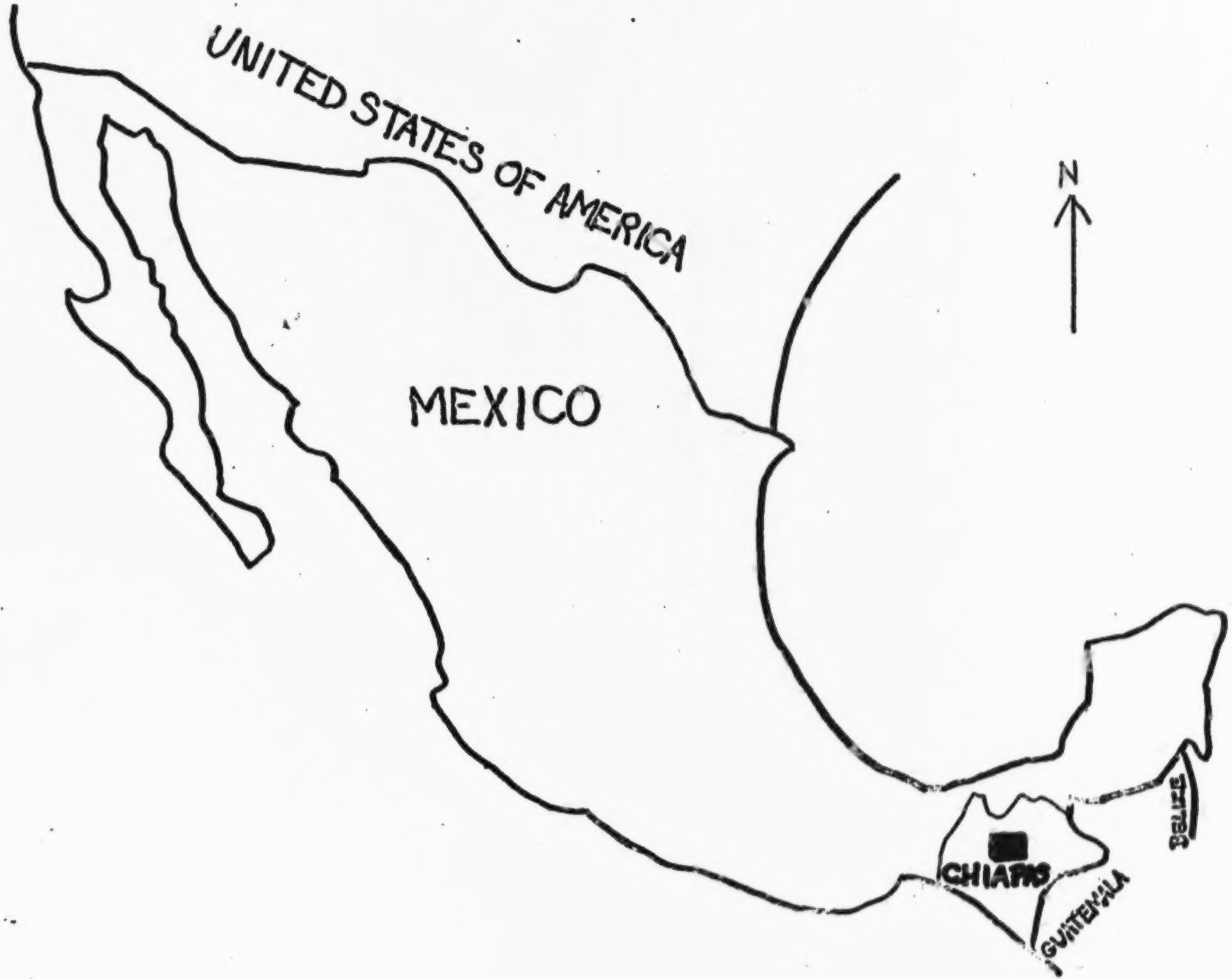
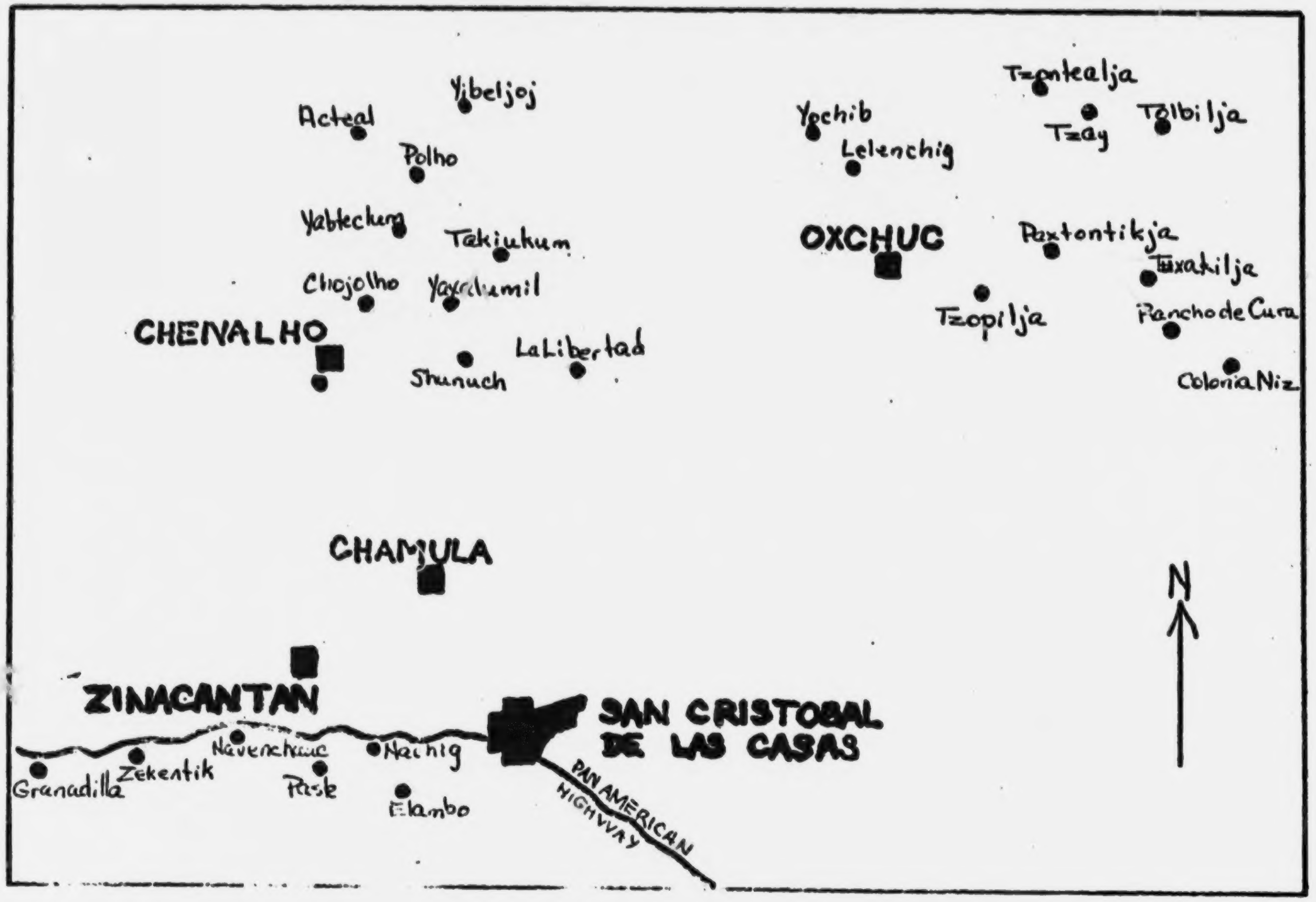
Map 1. Mexico. Darkened portion corresponds to the area of the study; see Map 2 for enlargement.



Map 2. Area of the Study: Selected municipios and sample schools.



CHAPTER I

THE PROBLEM

There is hardly a country in the world today which does not have within its boundaries sizable pockets of people who do not speak the national language; there is hardly a country in the world today that does not wish all its citizens to read in the national language. In many areas of the world, especially Africa, Asia, and Latin America, schooling is first being offered to millions of people, many of linguistic minorities. In the United States, with our remaining pockets of Indians and immigrants, this problem is widespread. In New York City alone, approximately one-tenth of the total school population is non-English speaking (Board of Education, City of New York 1963). While there is little question as to the desirability of youngsters learning to read in English there is question regarding methodology. Should all instruction be given in the national language, or should the mother tongue be used? If children should first read in their own language, would they learn to read in the national language more quickly and with greater comprehension? Or would the use of the mother tongue hold them back? Would it be a waste of time? The policies of all major educational institutions in the United States presently dictate that reading be taught directly in English (California State Department of Education 1952; Morrison 1958; State of New York 1947; U.S.

Bureau of Indian Affairs 1953). Many responsible educators are in accord. However, there are some who feel that literacy in the national language can be achieved more effectively if a student first learns to read in his mother language when the two differ.

The purpose of this investigation was to compare the relative merits of both approaches, and to try to determine whether the use of the national language or the mother language in the earliest stages of reading instruction was more effective in promoting reading comprehension in the national language among members of a linguistic minority.

The History and Scope of the Problem

The conquest of one people by another with the consequent imposition of the conqueror's language and some of his customs, has gone on since prehistoric times and has been responsible for the spread of the conquerors' written languages since the beginning of literacy; so Egypt spread her culture, so Rome spread her alphabet through most of Europe. In South America the Inca Empire was noted for its thorough suppression of native languages and the imposition of its own; it is to be supposed that had the Incas had a permanent form of writing they would have done the same with their written language. The Catholic Church imposed the use of Latin on its clergy but also made extensive use of vernaculars. In Mexico individual priests transcribed and then taught in a number of Indian languages. More recently Portestant missionaries have done the same. A notable group is the Wycliff Bible Society which has by now transcribed most of the Indian languages spoken throughout the

Americas. People directly related to the society or linguistic students of theirs were directly responsible for the introductory reading primers in mother languages used in Mexico; the subjects of this study attending the bilingual schools of the National Indian Institute received their initial literacy instruction in such primers.

There are no reliable worldwide statistics available indicating the prevalence or size of linguistic minorities; some nations report with much greater accuracy than others. In nations with a multiplicity of languages, there are two especially important considerations in the selection of a language of instruction. Many developing nations look toward the unifying force of a single national language. For example, in India, with over 100 vernaculars, the drive was first toward 14 regional languages and more recently toward the imposition of a single language, Hindi (New York Times Index 1965). Another consideration for selecting a language of instruction is the availability of textual materials for the more advanced levels of instruction. When texts have not been available in the vernacular in sufficient quantity and variety, the tendency has been to choose a language of former conquerors, English or French.

In Arabic countries the tendency has been to teach in classical Arabic from the earliest lessons; only in a scattering of spots in Near Eastern countries is there some use of colloquial Arabic. In Central and South Africa the number of languages spoken is unknown but a conservative UNESCO estimate is 369 such languages (1953:16). Former English colonies have tended toward the use of mother languages in the initial teaching of literacy, although in some areas English is still used as the introductory language. This is especially so where Africans feel that mother languages carry lower prestige and are not worthy for schools. Former French colonies use French as the initial language of instruction almost exclusively. In some areas of Africa a common vernacular may be the initial school language; Swahili is used widely, in preference to mother languages. Newly independent countries tend to continue colonial educational policies while making schooling more popularly available. Among the white population of the Union of South Africa parents may choose either Afrikaans or English as the initial language of instruction (UNESCO 1953:17-22).

In Asia the general picture is of instruction in the national language; this is often not a mother tongue. In newly independent nations, as in Africa, the tendency is either to use the national language or the language of the former colonial power (UNESCO 1953:23-41).

In Europe the tendency is to teach in the national language, but a number of countries have more than one nationally recognized language and the presumption is that a child be placed in a class of his linguistic peers. There is a tendency in many European countries to teach a literary or classical form of a language, such as High German, Classical Greek or Castillian. In Eastern Europe there is more recognition of and instruction in minority languages. There is also some use of Lappish in Swedish schools (UNESCO 1953:43-44).

In Latin America the use of Spanish prevails in all former Spanish colonies; there is some minor use of Indian languages in Brazil. Spanish is used in all of bilingual Paraguay, which boasts a literature in Guarani (Folequist 1950:26), and in Peru, where over half of the population speaks Quechua (UNESCO 1953:24).

In the Caribbean, with the exception of Puerto Rico, where Spanish is given official recognition, and in North America, national languages are used (UNESCO 1953:23-24). In the United States our principal linguistic minorities include Indians and Mexicans in the Southwest, Puerto Ricans and other Central Americans in the East, and French Canadians in New England. There are also sizable pockets of Japanese, Chinese, Amish, and Scandinavians in different parts of our country. With every new wave of immigration some area of the United States is hit with a linguistic problem in its schools. Traditionally our response has been to suppress the use of the mother language in favor of English upon a child's entrance into school.

Of all the nations of the world, France, the United States, Australia, and Canada have been the most adamant on the use of nationally recognized languages for all levels of instruction, including the initial teaching of reading.

Comparative Studies

Studies comparing monolingual and bilingual approaches in the education of linguistic minorities have been relatively rare and have been made with few checks against experimenter bias. More frequent have been evaluative studies of existing practices.

Studies of monolingual programs, with all instruction offered in national languages, have been conducted primarily in the United States. Most important among them are those of Tireman, who evaluated the education of young Mexican-American children in New Mexico (1948), and Morrison, who studied the New York City Board of Education's program for non-English speaking students (1958). Both felt the development of an English vocabulary to be essential before students could learn to read with comprehension (Tireman 1948:76,174; Morrison 1958:95), and devoted the bulk of their studies to suggestions for improving practices in the teaching of oral English.

Evaluative studies of bilingual education have come primarily from the Soviet Union, where authors such as Kreusler and Serduchenko have juxtaposed use of the mother tongue with the rapid spread of literacy during the years following the Revolution of 1917 (Kreusler 1961; Serduchenko 1962). Other studies have included those of Malherbe in the Union of South Africa, who showed that the language learning of Afrikaans and English-speaking students was enhanced by a bilingual approach (Malherbe, 1943); two Mexican authors, who felt that bilingual programs proved to be more popular among several Indian groups than the all-Spanish programs which preceded them (Barrera-Vazquez 1953; Castro de la Fuente 1955); and Fife and Manuel, who showed that the extensive use of English hampered achievement in other areas and suggested that its introduction be delayed until fourth grade, by which time most students had dropped out of school (1951:38).

Of comparative studies, the major one was undertaken in the

Philippines (Orata 1953). Matched experimental and control groups were formed, each representative of all the major segments of the population of Iloilo province. The control group continued the previous patterns of instruction, using only English as the medium of instruction; the experimental group received all instruction in Hiligaynon, the mother tongue, for the first two years. During this time the experimental group showed "noticeable" superiority in arithmetic, reading and social studies (p. 127). For the third year of the experiment the children in the experimental group were taught in English; they continued to show higher levels of achievement in the school subjects, including reading (pp. 128-129). Orata noted additional beneficial results in the experimental group, such as more carry-over into non-school life, more positive feeling for school, and higher cognitive levels (pp.129-130).

There are a number of drawbacks to this study. The statistical findings are reported sketchily; another investigator cannot examine the data for himself. No effort seems to have been made to counteract the halo effect; on the contrary, 17 teachers were chosen for the control group against 12 for the experimental because it was felt that there would be a much higher rate of drop-outs in this group. The investigators were not disappointed (p. 126). When one takes into account findings such as those of Rosenthal (1959; Rosenthal and others 1960), who has demonstrated that experimenters' biases influence their results, this lack of caution throws all results into question. In addition, the experiment was conducted with only one ethnic group; it remains to be demonstrated that the findings are applicable with other groups.

Other comparative studies include those of Grieve and Taylor in Ghana, who were hampered by unmatched groups and teachers ignorant of research techniques (1952); and de la Fuente in Mexico, who recapitulated his experiences in instituting a bilingual program in a demoralized Indian community (1940). The findings of both authors supported the bilingual approach.

Plan of This Study

To recapitulate, the purpose of this study is to compare bilingual and monolingual approaches to the teaching of reading in the national language, and to determine which approach leads to greater reading comprehension in the national language. The hypothesis used in this study is the one implicit in educationalpolicies throughout the United States, that reading comprehension in the national language is best attained by members of linguistic minorities when all reading instruction is offered in the national language.

Within the boundaries of the United States it was not possible to find an area where a comparative study more adequate than the ones discussed previously, could be carried out; the bilingual approach is practiced at best sporadically, by a handful of teachers acting on their own. In Mexico, however, both approaches were being used. In southern Mexico the two approaches have been in operation side by side for over 10 years, thus allowing greater check against experimenter bias. For this reason it was decided to compare levels of reading comprehension in Indian schools in the Chiapas Highlands, with youngsters who speak the Tzotzil and Tzeltal languages.

The study was conducted in three municipios (tribal areas); in Oxchuc, where the language is Tzeltal, and in Chenalho and Zinacantan, where it is Tzotzil. Both languages belong to the Maya-quiche family and are mutually intelligible. Oxchuc was chosen because it is the municipio which has shown the greatest interest in schooling. Zinacantan has shown the greatest resistance. Chenalho was chosen because it represents an intermediary attitude. Five bilingual schools, founded by the National Indian Institute, and five state or federally supervised monolingual schools were studied in each of two municipios, Oxchuc and Chenalho. In Zinacantan fewer schools of both systems have been in operation for at least five years; therefore three bilingual and three monolingual schools were visited. All schools in Mexico follow a centrally prescribed course of study and claim the same philosophy and aims. Indeed, the push has been toward equalizing schooling for all. The difference between the monolingual and bilingual schools comes during a child's introductory period of attendance. In the Institute schools the first year is called a preparatory year and is devoted to teaching the child oral Spanish, literacy in the mother language, and some concept of numbers. The same is true of the monolingual Federal and State schools, except that literacy is taught in Spanish.

In all, 13 schools practicing a bilingual approach were matched with 13 schools in which only the national language was used for reading instruction. A test of reading comprehension in Spanish, based on material common to the lives of Highland Maya children, was developed; it was administered to all of the students of the above-mentioned schools who were judged by their teachers as ". . . able to understand what they read in Spanish." The test results were analyzed and compared; a discussion of possible causal factors follows.

CHAPTER II

SOME THEORETICAL CONSIDERATIONS

Before launching into a study of the relative merits of monolingual and bilingual approaches to reading instruction, it is necessary to consider both what is involved in learning a second language and what is involved in reading with comprehension.

Second-language Learning

The learning of an additional language cannot be separated from the learning of at least some aspects of an additional culture (Sofetti 1960). Although the primary purpose of language is communication, how man communicates, what he communicates, and even what he experiences, are very much interrelated with his culture.

Sapir (1921) and Whorf (1939) were among the first to point out this interrelationship. They took the stand that language was instrumental in defining experience and directing thought processes. Others who have concurred on the Sapir-Whorf hypothesis have included Hoijer (1952, 1954), Fearing (1954), Henle (1958), and, with a note of caution, Greenberg (1954).

Piaget has indicated that language follows upon thought (1959). Vygotsky stated that the new concept comes first; that its verbal expression never completely equals it; and that there is a continual interrelationship between the two, with the verbal expression helping to define the concept and the newly modified concept further modifying its verbal expression (1934). Watts has taken a similar position, that concepts precede their verbalizations, but he goes on to say that we tend to identify our more frequent thoughts by their verbal symbols, and eventually come to use these verbal symbols in place of the thoughts (1944). This substitution of words for thoughts becomes so prevalent that, on the higher levels of intellectual reasoning we must use words to help us define our new concepts (p. 21). Vinacke, taking a stronger point of view, states that language is dependent upon the thought processes of the speaker (1954:533).

How does learning an additional language affect the learner, especially the child learner? The literature dealing with this question has been considerable. Jensen's summary (1962) lists 220 sources and is far from complete. Those who have pointed out some of the ill effects of childhood bilingualism have shown that it may hamper the development of speech (pronunciation and rhythm), language, intelligence, schooling, and emotional stability, and because of the above, may be disadvantageous to society (Altus 1953; Anastasi and Cordova 1953; Arsenian 1945; Aucamp 1926; Axelrod 1953; Carroll 1957; Chavez and Erickson 1957; Darcy 1952, 1953; Fife and Manuel 1951; Hartshorne 1929; Haugen 1956; Jespersen 1922; Johnson 1953; Jones 1952, 1953, 1960; Klineberg 1935; Lado 1957; Lewis 1959; McCarthy 1954; Norman and Mead 1960; M. E. Smith 1957; Smith and Kason 1961; Wallace 1956; West 1926, 1936). Some of these same people and others have also felt that childhood bilingualism enhances the development of language, intelligence, academic achievement, emotional adjustment, and has a beneficent effect upon society (Anastasi and Cordova 1953; Arsenian 1945; Aucamp 1926; Axelrod 1953; Darcy 1952, 1953; Johnson 1953; Katzoff 1954; Klineberg 1935; McConkey 1951; West 1926).

Some investigators feel that existing in a bilingual environment may cause a strain upon the individual but that cultural or personality factors rather than the language as such are primarily responsible for the slower development or instability which frequently result; when the environment surrounding the learner and his own motivation favor the learning of a second language, the benefits accrued outweight whatever disadvantages may result (Abraham 1956; Bovet 1934; Lambert, Havelka, and Crosby 1958; Lambert and others 1961; Sofetti 1960; Walters 1958).

The principal purpose of language is communication (La Brant 1951); if the previously learned verbal symbols do not suffice then the individual, if he wants to communicate, will find some other means of communicating, just as a baby learns to communicate gesturally before he begins to speak (Carroll 1957; McCarthy 1954). If he does not wish to communicate he will not succeed in doing so, even if he speaks the same language (Ashton-Warner 1963; Bernstein 1958; A. Davis 1950; Riessman 1962).

This does not negate the close interrelationship between language and culture. Indeed, a person's language preference may be taken as a measure of his ethnic identification (Caso 1958a; Harrison 1957; Hughes 1934; Samora and Dean 1956). But it does carry the implication that there are other factors which outweigh language as such in shaping the conceptual and emotional development of the individual, and which, in turn, effect his learning of an additional language and culture. Such factors include the learner's ethnocentricity, his feelings about the language and culture to be learned, his motivation for learning them, and the context in which the learning is used (Doob 1957, 1959; Epperson and Schmuck 1963; Malinowsky 1934; Mead 1956, 1959; Miller and Selfridge 1953; Swadesh 1960). As Soffetti has stated:

> . . . most of the difficulties and retardations indiscriminately ascribed to bilingualism are rather due to the bicultural aspects of the situation under consideration. It is the living in two distinct cultures either overtly or in one's internal life that might create problems of adjustment. It is a conflict between ways of life, beliefs, customs, value systems and not necessarily one between language systems (1960:277).

Reading Comprehension

Reading may be defined as the meaningful interpretation of graphic symbols. It involves the perception of those symbols and the ability to attach meaning to them; it presupposes that the reader has at least some knowledge of the language in which he is reading.

Definitions of reading have included lists of skills involved in the process of reading and factorial analyses of those lists. Some authors have included comprehension of what is read in their general definitions and some have defined it apart.

Of those who have listed skills, Burkhart was perhaps the most ample, giving 214 elements (1945). Russell gives seven elements for the act of reading (1961b:99) and 11 major comprehension skills, many of which he subdivides, to form a total list of

25 (p. 246). Gray gives four principal "attitudes and skills" which he also subdivides (1956:64-71). Edwards lists four elements (1957; F. Davis, five (1944); and Yoakham, six (1951). Smith and Dechant, in summarizing the work of others, list 12:

1. Ability to associate meaning with the graphic symbol
2. Ability to understand words in context and to select the meaning that fits the context
3. Ability to read in thought units
4. Ability to understand units of increasing size; the phrase, clause, sentence, paragraph, whole selection
5. Ability to acquire word meanings
6. Ability to select and understand the main idea
7. Ability to follow directions
8. Ability to draw inferences
9. Ability to understand the writer's organization
10. Ability to evaluate what is read; to recognize literary devices and to identify the tone, mood, and intent of the writer
11. Ability to retain ideas
12. Ability to apply ideas and to integrate them with one's past experiences (1961:213-214)

Factorial analyses have identified two principal aspects of comprehension. One is vocabulary, to which most investigators attribute about 50 per cent of the variation. The other has been named differently by different investigators, but appears to be some aspect of verbal abstract reasoning. In one of the earliest studies, Thorndike pointed out that comprehension is based on word and sentence meaning (1917). O'Donnell felt that vocabulary is more important than a knowledge of grammar (1962). Anderson has called the second factor a combination of intelligence and ability at analysis and synthesis (1949); F.Davis has called it reasoning in reading (1944, 1956). Both Langsam (1941) and Hall and Robinson (1945) have called it a verbal factor; Burt found that this verbal factor was composed primarily of words in isolation and words in context (1949). Jan-Tausch has demonstrated a relationship between comprehension and abstract reasoning (1962). Holmes described the second factor as a combination of verbal intelligence and the understanding of verbal relationships (1954), and Hunt has described it merely as "general reading comprehension" (1952:126-127; 1957:169).

The more general definitions of reading have included those of Strang,

> fusing symbols with their meanings to comprehend an author's thought (1955:62)

DeBoer and Dallman,

> an activity which involves the comprehension and interpretation of ideas symbolized by written or printed language (1960:19)

and Smith and Dechant,

> the process of relating (the perception of) graphic symbols to the reader's fund of experience (1961:38)

There are a number of factors which are said to affect reading comprehension. A principal one is the reader's experience, both with the language in which he is reading and with the concepts the author is trying to convey. Durrell has pointed out that children who recognize the separate sounds in words learn to read more easily than those who do not (1962; Durrell and Murphy, 1953). Strickland has stated that reading and listening have much in common in that the listener or reader deals with verbal symbols which he must recognize and be able to interpret (1958). More recently Biggins has demonstrated "strong relationships" among listening comprehension, reading comprehension, and intelligence (1961). It has also been claimed that a knowledge of the grammatical structure of the language is important in helping the reader attach the right meanings to the words he reads (Werner and Kaplan 1952) and in helping him to enlarge his existing vocabulary (Dolch 1927, 1956).

Experience also plays a major role in conveying the author's intent. In order to deal effectively with the graphic symbols from which he is to gain meaning, according to Waetjen the reader must first have a "sufficient number" of "direct sensory experiences" followed by the expression of those experiences in verbal symbols; only then can he gain meaning from the expression of those experiences in graphic symbols (1962:22-23). Crosby carries this view further when she states that it is only through experience that ". . . children bring meaning to and secure meaning from the symbols of reading" (1959:552). Smith and Dechant underscore the relationship between the reader's experience and his ability to deal with word symbols:

> Although the word symbol itself has no meaning it provides a focal point for concept formation, and comprehension certainly depends on the adequacy and accuracy of one's concepts. The reader builds his store of meanings both from his direct experience and from the new meanings he is able to form by combinations of his previously acquired meanings. Meaning then is acquired from experience, and comprehension cannot be more adequate than experience . . . it is only by the use of word meanings that comprehension may be attained (1961:215).

It is felt by a number of writers that the very perception of the graphic symbol itself is affected by the reader's experiences. They view perception as more than the sensory reception of the graphic symbol; what is involved, too, is the selection and organization of the stimuli, and this process is modified by the individual's experience (Bruner 1957, 1958; Smith and Dechant 1961). Fantz has demonstrated that infants tend to select and study for longer periods of time those visual stimuli which are most meaningful to them, in this case, pictures of faces (1961). In applying this to reading, Russell states that those words which are ". . . most familiar in meaning are learned more readily than unfamiliar words" (1961a:106).

Other factors which influence comprehension are the reader's purpose and interest in what he is reading, his physical condition and environment, the legibility of the material he is reading, and the author's style (M. Bernstein 1955; Dawson and Bamman 1963; DeBoer and Dallman 1960; Gray 1956; Judd and Buswell 1922; Kottmeyer 1959; McCullough 1959; Smith and Dechant 1961).

Other writers have pointed out that there are several levels of comprehension, ranging from superficial understanding of the literal meaning of individual words and phrases, to an evaluation of the truth and value of what has been read (Piekarz 1956; Russell 1961).

Although all the preceding material has related to reading in English, it has been demonstrated, especially by Gray (1956), that the reading process is similar in all languages and styles of graphic representation. Using as subjects seventy-eight adults reading in fourteen languages which included a variety of alphabets, idiographic writing forms, and syllabaries, Gray demonstrated, through the use of filmed records of eye movements and questions designed to measure comprehension of the passages read, that ". . . the general nature of the reading act is essentially the same among all mature readers" (p. 59).

As in the factorial studies of comprehension in English by English speaking children, West found that for Bengali children learning to read English as a second language, vocabulary was the single most important factor (1926:vi). It has also been stated that for children to be able to read with understanding in a second language, they must know the meanings of the words before they can master the graphic symbols (Bernard 1951; Patterson and Joyce 1955). Bumpass carries this further when she states that the reader must recognize the words of the second language by their sounds before he can learn their meanings and that the child must have a mastery of the sounds and structure of his own language before he can read in another (1962).

CHAPTER III

THE SETTING OF THE STUDY--THE INDIANS OF THE CHIAPAS HIGHLANDS[1]

Chiapas is the southwesternmost state of Mexico, bordering on Guatemala. San Cristobal de Las Casas, the economic center of the Highlands, lies at 7,000 feet above sea level; the Indian communities visited during the course of this study lie between 4,500 and 8,500 feet above sea level. There is considerable rainfall in the area and for the most part it is cool, with altitude and sunlight prime determiners of temperature. Because of the steepness of the mountains, the area within a given school district often varied considerably in crops and vegetation. Due to the abundant rainfall, pine, oak, and orchid forests are green the year around. Principal crops include corn, "the staff of life", beans, wild herbs, squash, prickly pears, some apples, pears, peaches, plums, and in the warmer sections coffee, chili, sugar cane, and tropical fruits.

The Highlanders are an agricultural people; for them corn is life, the slash-and-burn farming methods much the same as they have been for thousands of years, and most planting done with a pointed stick. Erosion is common; this investigator has seen corn growing in rocky sections, in crevices of earth no larger than her hand.

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[1] The following descriptive data was obtained by both written material and direct observation. Nothing is included which direct experiences showed to be invalid or questionable. The principal authors consulted were Blom, Caso, Colby, de la Fuente, Holland, Holmes, Metzger Nash, Pozas, Siverts, Slocum, Trens, and Villa Rojas.

The Tzeltal and Tzotzil people are descendants of the first great Maya empire of 2,000 years ago; by the time the Spaniards arrived the center of civilization had moved on. As in the rest of Mexico the Indians were quickly conquered and exploited. Since the Maya already worshipped a god represented by a cross, the Spaniards appear to have been less destructive than in other areas. They forced the Indians into a type of nominal Catholicism, usurped the most productive farmland, and imposed labor and monetary taxes. The indigenous hierarchy was dissolved, the warrior spirit crushed, and the tribes organized into _municipios_. The rest of the culture was left intact. Those tribes which have had the greatest contact with the Spaniards and their descendants have also been the most resistant to acculturation.

Although agriculture is the primary occupation of the people it is not sufficient to sustain life; moreover the people have come to depend upon San Cristobal for some manufactured goods and occasional dietary supplements. To obtain money for trade some agricultural products, home crafts, or wool, are sold, and many men and boys do local day labor or go to lowland coffee plantations for cash earnings. On the plantations, where daily wages are highest, an average day's labor buys about three yards of unbleached muslin or a man's hat; it takes about a week to earn a man's large size machete.

Contact is maintained between the Indian and mestizo worlds largely through trade. Until the arrival of the National Indian Institute in 1952 these contacts were marked by considerable hostility on the part of mestizos and acquiescence on the part of the Indians. Although much exploitation continues mestizos have learned to treat Indians more respectfully. Within the past few years this investigator has come to see Indians demand more respectful treatment from the formerly awe-inspiring mestizos.

The most common form of travel or transport within the municipios (tribal areas) is by foot. Some Indians own draft animals, but they are a luxury and slower on the steep trails than are men. A few dry weather car roads have been built within the past few years and more are under construction. Passenger trucks, charging a fare equal to about a day's wages, are becoming more frequent, but so far serve only a small portion of the Indian population; most people continue to walk a day or two to reach San Cristobal.

Money continues to occupy a secondary role in Indian culture; it does not secure status for the owner. It is the hard worker who is respected, the lazy man abhorred. There is some division of labor, with men's work centered more on farming and women's in the home. The family is seen as an economic unit, with each contributing as he can. Although the women may trail behind their men in public and appear to do some of the heavier tasks, such as carrying wood and water, there is a basic equality of the sexes. Public life in government is the sphere of men but no major decisions are made without consulting women in private. Women are also held in some awe for their child-bearing capacities, and are expected to be the sexual aggressors. It is felt by some anthropologists that they are more conservative than men and more resistant to acculturation.

The people generally live in huts of wattle and thatch, scattered among the corn fields or clustered near one another in _Parajes_. For most tribes few people live in the _municipio cabezeras_, the religious and political centers of the _municipios_. Homes are generally of one room, although in some _municipios_ a separate kitchen is built. Roofs are thatched, although more and more tile roofs are coming into popularity. Light enters primarily through the door. The huts stand in a large yard, which may be surrounded by a wooden fence. Within the compound are also small vegetable gardens and corrals, and, depending upon the _municipio_, there may be a steam bath. Inside the hut furniture is sparse and decorations reserved for the altar if there be one. Blocks of wood generally serve as chairs, boards are laid out in the evening for beds, water and food are stored in jars, corn and firewood piled in corners. Other food, implem[illegible] clothing etc., hang from the rafters, from rope lines, or are stuck in chinks in the mud walls. The fire burns or coals glow day and night, after dark additional light may be supplied by pitch brands. In most _municipios_; floors are swept once a day, but with the ever-present mud, domestic animals, and the like, they are not as clean as our own. For special occasions floors are covered with pine needles.

Manufactured cloth is finding its way more and more into the

Indian wardrobe, although perhaps half of the garments worn are home woven and some home spun. Women's dress has remained essentially the same as in ancient times; it consists of a wrapped or pleated skirt held in place by a wide sash, an embroidered tunic, and is covered by a large rectangular shawl used for carrying babies and produce. In some places a woven cloth is worn on the head to prevent sunburn; women do not wear shoes. Men's dress shows greater variation. Where more conservative forms are maintained shorts take the place of trousers and short ponchos cover all, but cut, color, and embroidery show the origin of the wearer from a distance. Most now wear ready-made hats, thick-soled sandals are common, and more and more men are changing to mestizo (modern) clothing, which tends to be less expensive but less durable than older styles. Anthropologists have often equated a change in clothing to a change in allegiance (for example, Drucker 1963). This was not entirely substantiated by this writer's experiences. In Oxchuc many of the younger men have adopted mestizo clothing without changing allegiance. It may be that a change of allegiance, with personal goals overshadowing tribal interests, will come with the next generation; how much this will be due to a change in costume and how much to the influence of schooling, will be hard to determine.

Families may be either nuclear or extended. Polygamy is practiced, but is too expensive for most men and, forbidden to Protestants. Generally the immediate family is structured much like our own, the great difference being in much show of respect for elders. In a broader sense the family consists of the clan, all those with the same last name as the father. Marriage is tabu within the clan, outside the municipio, outside certain geographic subdivisions within the municipio, or with close relatives. In some municipios there are only a few clans, thus considerably limiting marriage choices (and adding to the investigator's problems, for it is not uncommon to find several children of the same first and last names and the same age in a single classroom).

Family atmosphere should ideally be one of happy, calm cooperation among the relatively independent members of the economic unit, according to the beliefs of the people. Loud noise attracts the attention of the gods and quarreling may cause sickness. While the observer may see only that the people of a community work quietly, almost silently, in their corn fields, quarrels, wife-beating, adultery and the like are not uncommon. Young couples begin their married life with one or the other set of parents. Their eventual separation and the initiation of a new nuclear family is usually blamed on quarrels between the young wife and her mother-in-law, but in actuality result from tensions between father and son as the married youth begins to assert his independence. Most commonly marriages are arranged by the families, the ceremonies proceeding along lines dating back to antiquity; they are seldom legalized by civil registry, or celebrated in church.

Religious beliefs and customs are also a blend, more Maya than Spanish. A pantheon of saints (gods), most with Christian names, are worshipped, but each representation of the same saint possesses different powers and is honored accordingly; each wooden cross is a separate deity. In the old legends only some of the names of some of the gods have been changed to saints; within the church the manner of worship little resembles Roman Catholicism. People sit about on pine needles, eating, drinking, nursing their babies, at times lighting candles on the floor, praying to the sun, the moon, Our Mother the Earth, the various saints, the caves and hills, and to every source of water. Since the end of World War II some Protestant missionaries have been active in the area and have succeeded in converting about half of the families of Oxchuc, one of the _municipios_ visited during the course of this study.

Religious and political leadership are ideally shared by all the men of the _municipio_; status is attained by fulfilling a succession of political and religious offices. The only mestizo to participate in municipal government, which follows the structure outlined in the Mexican Constitution, is the Secretary; he is also the only salaried official. The Secretaries, who are ultimately responsible for all written documents, have, in the past, used their offices largely to exploit Indians; recently a more honest group has begun to take over these posts and to help their communities.

Life is sanctified; religion and life are one and interwoven. Those who work to preserve life, the _curanderos_ (faith-healers), are held in much esteem; Holland (1963) compares them to a priestly class. Healing is accomplished largely through confession and prayer, to the accompaniment of drinking. Although the use of our medicine is becoming more popular, especially when the old remedies prove ineffective, the only time that life may be taken, other than for food, is to rid the community of witches. It is believed that with increasing age comes increasing knowledge, both good and evil, and that evil knowledge can be used for sorcery. Witchcraft serves as a powerful control over behavior; those who break with existing customs, amass noticeable wealth, or otherwise endanger the status quo, are soon accused of witchcraft. In times of stress witches encountered within the community are killed. Witchcraft may also have been used as a means of ridding communities of non-producing members, especially the aged, in times of famine.

No statistics were available regarding physical health. Tropical diseases are almost unknown in the Highlands, and resistance to infection appears to be much greater than among ourselves. Dysentery and pneumonia are the principal causes of death among the adults. Water is plentiful but much of it is found in stagnant pools. While teachers make a half-hearted effort to convince the people to boil all drinking water they are generally not successful. The principal item of diet is corn, which is soaked in lime; this is taken at every meal in some form. It is supplemented by chili, a fine source of vitamins, beans, and some vegetables. Limited amounts of fruits and berries are eaten in season. Intake of protein is limited, meat generally reserved for ceremonial occasions. People tend to be short in stature; this investigator's estimate is that average adult height is about five feet.

The people believe that children should be wanted and cared for, as a gift of the gods and an economic asset. Men tend to prefer boys, women girls. When a woman's pregnancy reaches term her husband tries to remain close at hand, for during labor she should be surrounded by her closest relatives. Her husband supports her during labor, participating as much as a second person can in the birth process. In his absence it is her children or female relatives who aid in the delivery. Babies are slung on their mothers' backs and are carried there most of the time. When they whimper they are fed. In some *municipios* child nurses, especially girls, may be used, but in others the infant is cared for almost exclusively by his mother. As babies begin to imitate the adults around them they are encouraged and are soon working on their own. This investigator has seen three and four-year olds carry miniature bundles of wood which were later used in the family fire, make tortillas, participate in weaving and spinning, and generally begin to contribute to the family economy. Work is considered to be the right way to spend one's time, not an imposition on play-time. Soon children are working side by side with the parents, soon they begin to earn their own clothing and food. When they have mastered their tasks, have shown that they can provide for others, and have reached pubescence, they are ready to marry. In some *municipios* marriages take place at puberty, in others during the later teen years.

In the past children who were not gainfully occupied for most of their waking hours were looked down upon, but now some games associated with school may be played near the school house. Boys and girls generally play apart, the boys being rougher and more active. This investigator has always been struck by the high level of physical energy these children appear to have, especially considering their limited diet and the strenuous nature of their non-school activities. Group games are popular and vary from the minor organization of tag to the major organization of basketball. Toys are few except for those a child may invent from a stick of wood or a bunch of rags, but close to school boys play with marbles, tops, and balls.

Traditionally, children were educated through the stories and precepts of the elders, and even more through observation and imitation. As they begin to imitate their parents they are encouraged and given miniature tools or little wads of dough with which to practice. Occasionally children misbehave and are punished, but this is rare. The shepherd who loses his flock must go and find the animals, that is all. In some municipios parents are firmer with their children than in others and quicker to punish, but even they would be considered permissive by our standards. Usually education is accomplished by a person explaining and showing and showing and showing. Now that modern schooling is spreading many children leave their homes for several hours a day, or perhaps for several days at a time, to sit in classrooms.

Children are brought up to respect their elders, to be obedient and quiet, but with the show of obedience and respect there is much independence of thought and of movement. Adults find little cause to oppose youngsters; it is rare for a parent to deny his child's wishes.

Children and adults often seek their age-mates for friends;

these will also probably be relatives. After earliest childhood there is little mixing of the sexes in public, although heterosexual exploration begins as soon as the child is interested and finds the opportunity, often before the age of six. Some modesty and discretion but little shame is attached to physical functions. When with friends one laughs at his own discomfort and errors and the others laugh with him; laughter is also used to help in a group undertaking.

Life is all of a piece, the conflicts fewer than in our society and the hostilities suppressed. The tone is one of mutual respect with much outer show of it. There is much soft laughter and much show of happiness, for this brings the approval and help of the gods; any other expression may bring their wrath.

CHAPTER IV

THE SETTING OF THE STUDY--SCHOOLS FOR INDIANS

Prior to the Revolution of 1910 rural education was virtually non-existent in Mexico; at the turn of the century less than 7 per cent of the national budget was devoted to education, almost all of which was urban; the national rate of illiteracy was close to 85 per cent (Ruiz 1963:8). One of the major accomplishments of the Revolution and the Constitution of 1917 which followed, was the recognition of a need for public, federally supported, education; local governments had remained in the hands of the powerful minorities which had enslaved the peasantry and Indians. In 1920 the first Federal rural schools were opened. Intended as centers for community development and dependent on the poverty-stricken communities for almost all economic support, teachers were called missionaries and the school "The House of the People (La Casa del Pueblo), the School of Action." In 1931, 13 per cent of the national budget was devoted to education, and close to 600,000 students attended approximately 7,000 rural schools, administered to by about 8,000 teachers. Eighty-one per cent of communities with populations of less than 4,000 were without schools; most school buildings were unequipped, dark, peasant huts; everywhere attendance competed with the need for child labor (Ruiz 1963:40-41). Between 1920 and 1930 only 2 per cent of students continued beyond second grade; teachers were poorly trained, underpaid, and overworked.

New emphasis was given to education by the regime of the late 30's, during which time more rural schools were opened than during any previous time (Ruiz 1963:64). It was during this period that the federally supported Indian boarding schools in San Cristobal, Amatenango and Zinacantan were founded; among the students have numbered most of the present Indian teachers. However the bulk of the population, especially the Indian population, remained unaffected by these changes.

A scattering of federally and state supported schools were opened in the Highlands during this period. In 1948 the National Indian Institute was founded as an outgrowth of the first Inter-American Congress of 1940, and the political labors of its director Alfonso Caso (Caso 1964:9). The first of its schools to be opened in Indian communities date from 1952, and their inception spurred the founding of more State and Federal schools. In 1964, the administration and supervision of the Federal and Institute schools was merged; State schools continue, as of this writing, to be administered and supervised independently.

Educational Philosophies

The educational philosophies of the National Indian Institute and the Federal and State schools differ only in regard to the initial teaching of literacy. After that, and at all times in all other subject areas, Institute, Federal and State schools follow the same courses of study (Romano 1964b; Ruiz 1963:59-60).

Official educational philosophy was spelled out in the Federal

Constitution of 1917. Article 3 gave to all Mexicans free, obligatory, fundamental, education. It was also stipulated that schools be founded for the economic, social, and cultural growth of their communities, for the economic growth of their entire nation, and that they be free of all religious teaching (Instituto Federal de Capacitacion del Magisterio 1963:17-18). Article 27 of the Constitution reiterates these ideals (Consejo Nacional Tecnico de la Educacion 1962:215).

On July 29, 1958, Professor Torres-Bodet, then Secretary of Education, spoke to a conference of the nations's educators. That speech is held as the initiation of a major national educational reform, still founded on the needs of a growing nation. Torres-Bodet set the following goals:

1. To develop a Mexican with all his faculties stimulated; these faculties include comprehension, sensitivity, character, imagination, and creation
2. Children should know their physical, social and economic environment, they should have increased confidence in their work, and they should be more responsible toward community programs
3. Curriculum should be based directly on children's experiences
4. There should be some differentiation between rural and urban education, but both should be equally good
5. There should be a six-year education cycle for all, but this should take into cognizance the present reality of wholesale school desertions; fundamental education should be stressed in the first four grades
6. Subject content and teaching methods should be changed to meet children's and society's needs (1961:5-9)

Both the Institute and the Federal Secretariat of Education continue to expect schools to be focal points for community development, but the Institute stresses this aspect more (Romano 1964a:31-34). Its primary concern is with Indians and with those mestizos who deal with them; its primary aim is acculturation and the modernization and industrialization of Mexico. There is an interest in the well-being of the people with whom it deals, especially by raising economic and cultural levels, and by preserving the positive aspects of Indian culture (Romano 1964a:31). Within this framework, in addition to the philosophy advocated by the Secretariat of Education, the Institute advocates teaching in the mother language as a vehicle for students learning Spanish. It also stresses the interaction between school and community, with the school serving as a prime acculturational agent (Montes 1954). It advocates that literacy begin in the vernacular, parallel with the oral teaching of Spanish, and that literacy teaching continue in Spanish once it has been mastered in the vernacular (de la Fuente 1958a:100).

At present the Secretariat of Education is moving closer to the Institute program regarding the initial teaching of literacy. It now advocates special consideration for linguistic differences, although it takes little or no cognizance of ethnic differences. A preparatory year is now programmed for linguistic minorities (Plan de Educacion Indigena para 1964). Institute and Federal schools were merged into centralized supervisory districts just prior to the field work of this study; however, all students tested were products of the old and divided supervisory program, under which, in the Federal and

State schools little or no cognizance was made of language or ethnic differences, preparatory groups were discouraged, and teachers taught reading exclusively in Spanish. Federal and State schools had been supervised by Federal and State inspectors; Institute schools had been supervised by Institute personnel.

The philosophies described above appeared to determine educational practices observed in the field. All schools visited had and used free Federal textbooks. All but one of the teachers interviewed claimed to use federally or privately published manuals for the Federal materials, as guides to curriculum planning; all of these manuals evidence a nationalistic program stressing the Mexicanization of the students. All teachers taught in the Spanish language, and many Institute teachers abandoned extensive use of the maternal language after the first grade. State and Institute schools also displayed Federal school calendars. The only mention made of non-Federal materials was by Institute teachers working with preparatory year students who had recently entered the school and had not yet learned Spanish.

All schools take a yearly census and all children on census lists should be enrolled in schools; this would give credence to the Federal philosophy that education is obligatory. In practice this was not the case. Two state teachers had official enrollments of 50, actual attendance and enrollments well above that figure, but listed only 50 students because that is the correct number per teacher advocated by the State and there was only one teacher in each school. In other schools, the census rolls were inaccurate, increasingly so as the teacher was unfamiliar with his community, or lacked the confidence of his neighbors. It appeared that in every case numerous children were not included in census lists. In all but the State schools the census list was taken to be the enrollment list, but a second, more realistic, enrollment list was also created.

The academic program rarely extended above the literacy teaching of the early grades; the economic and cultural aspects of the program were largely ignored. Literacy teaching was stressed and considered to be the essential basis for the economic and cultural development of the community. Music, in the form of singing only, and dancing, were the most common non-literacy activities. There was also much stress on nationalism. Weekly assemblies were held in all schools observed; each was devoted largely to patriotic ceremonies, and there was much verbal stress on national heroes and commemorative days.

The curriculum, as applied, was only slightly related to children's experiences; this was especially noted in language arts and through the use of Spanish in teaching other subjects. By using Spanish, teachers tended to put comprehension of subject matter beyond students' reach.

A minimal differentiation for rural education was observed, consisting primarily of the maintenance of school agricultural plots, which were used to teach farming techniques and to raise money for the schools; and by limiting formal physical education games to basketball and volleyball, on the theory that other games either require equipment which is prohibitively costly or require large level playing fields which are too costly to dig out of mountainsides (Santiago M. 1965).

There is wholesale desertion by students at about second grade. It was this observer's impression that when students feel they have achieved literacy or when economic pressures bear down upon them, they leave school.

Parents' Associations were encountered in all schools. These are organized to assist teachers, who are expected to assume leadership roles. It was this observer's impression that a number, but not all, of Institute teachers worked well with the committees because of the cultural bonds uniting them, and that mestizo teachers tended to have considerable difficulty with these parental, liaison groups due to their inability to communicate, negative attitudes, or both. There were exceptions on both sides; there were some mestizos who appeared to work very well with community representatives and some Indians who appeared to have poor relations with them.

In the summer of 1965, the Secretariat of Public Education ordered the institution of preparatory grades and the hiring of bilingual _promotores_ where school registration warranted it. It is still too early to determine to what extent these new orders have been carried out.

Administration

Federal schools in Mexico are centrally administered, with most direction coming from the Secretariat of Education. There is a Federal Director in each state, and under his supervision an inspector for each zone. The inspector carries out all of the responsibilities and duties which we associate with school principals. Under his administration are the directors of the primary schools; in each of the schools observed these were teaching directors (many were one-teacher schools). Under the supervision of the school director are the group teachers, usually called assistants. In addition to the administrative structure described above, the Secretariat of Education maintains an institution for in-service training and a department for curriculum research and dissemination (UNESCO 1953:707).

The National Indian Institute is an autonomous federal agency (Caso and others, 1964:10), with a program which includes more than schooling. The centralized post of Director of Education was created within the past few years. In each of its regional centers there is a local Director of Education. Where the number of schools warrant it there are inspectors as well as teachers, who are also classified as directors and assistants. With a recent merging of zones of inspection both Federal and Institute inspectors now have under their supervision Federal and Institute teachers and the new Secretariat of Education promotores (Romano 1964a:34).

For the State school system there is a State Director of Education and local inspectors. There has been no merging of tasks between the Federal-Institute inspection and the one State inspector, who covers the entire Highland zone. However, almost all State schools are located near means of transportation, so it is easier for the State inspector to visit his schools than it is for the Federal-Institute inspectors, who must travel by horse or foot for as much as two days in order to reach some outlying schools.

During the course of field observations the above administrative procedures were observed in practice. In 1964, based on the agreement between the Secretariat of Education and the National Indian Institute Director of Education in Mexico City, Secretariat and Institute inspection was merged.

Of the 21 Federal and Institute schools studied during the course of this project, seven are now under Secretariat inspection and 14 under Institute inspection; in addition five State schools were visited.

Supervision

The philosophy of supervision, or inspection, is based on that of Raphael Ramirez. The primary aim is the improvement of education. Ramirez advocated that inspection should be efficient, scientific, democratic, and cooperative; he stressed educational functions over administrative ones (Garcia Ruiz 1963:36-37):

> School inspection is the means by which the Secretariat of Education orients, directs, advances and measures educational work. . . . The school inspector's duties cover the following areas: educational, sociological, administrative, material (building and equipping a school), and in-service teacher training (Garcia Ruiz 1963:147-151).

He advocated that the inspector should visit his schools periodically, deal with the solution of school and community problems, and teach and illustrate those solutions. The number of visits to a school would vary with prevailing circumstances, but never be less than two yearly (Garcia Ruiz 1963:154-155).

The National Indian Institute inspector's duties are as follows:

1. Direct the schools toward functioning well
2. Improve teaching methods
3. Resolve school problems in the community with parent committees
4. Organize the distribution of school breakfasts (when they were in effect), sports contests, and social and civic functions
5. Make monthly reports of the above activities to the Director of Education (Romano 1964a:35)

The number of inspection visits reported by teachers varied between none and five yearly. It was this investigator's impression that most visits were either planned to deal with major attendance problems or were cursory in nature, with little attention to teaching methods; many teachers appeared eager for more help, although many indicated clashes with inspectors and lack of confidence in them. During the course of this project it was reported that two inspectors did hold training seminars for all their teachers, but the actual number of such training seminars was probably higher. There was no way to judge the efficacy of these seminars but nothing new which may have been advocated during their course was observed during field visits.

Physical Plants

It is expected that all schools be erected by locally donated labor and/or funds. Federal and State school buildings constructed during the past fifteen years are either adobe and tile ranch style buildings (Tipo Juarez), or are pre-fabricated, mass produced, and more modern in design and materials. The Secretariat advocates 1.35^2 or 5.4^3 meters of space per pupil, that at least 1/5 of wall space on pupils' left be devoted to windows, and that floors be of some material other than earth. A rural school building may contain living quarters for the teacher and his family, as well as a classroom (Gallo M. and Gutierrez 1963; Secretaria de Educacion Publica 1963).

In addition to classroom buildings, the Secretariat of Education lists the following as highly desirable annexes to school plants, to be constructed as a community is able to fund them.

A. Recreational

    1. Open Air Theatre
    2. Basket and Volley Ball Fields
    3. Playground
    4. Yard for organized group games

B. For Economic Education

    1. A Farm Field
    2. Small Vegetable Garden
    3. Orchard, if only for a few fruit trees
    4. Flower Garden
    5. Pens and cages for domestic animals
    6. Workshops such as carpentry, bookbinding, toymaking, smithy, tinshop, and, when raw material is found in abundance, basketry

C. Sanitary

    1. Latrine
    2. Bath
    3. Clinic

D. Cultural

1. Museum
2. Library
3. Science Laboratories
4. Reading Room and Public Secretary

E. Domestic Activities

1. Sewing
2. Cooking
3. Laundry

F. Other

1. School Office
2. Administrative Office
3. Store Room

In addition it is desirable to build a house and kitchen for each teacher and, because of the recent school breakfast program, a kitchen and dining area for the students (Callo M. and Gutierrez 1963).

National Indian Institute (Tipo INI) classroom buildings should be long stucco edifices oriented on a strictly north-south axis to allow maximum sunlight from doors and windows. Doors and windows are prefabricated; the buildings are covered by two-sided tile roofs. Floors should be constructed of wood, brick, or cement, depending on local materials (Accion Indigenista 1960, 1962). The program for school annexes is much the same as for Federal schools, if on a more modest scale, with the additions of special rooms in each school for housing visitors and dormitories in the few boarding schools.

During the course of field visits it was discovered that some school buildings, once oversized by local standards, are now overcrowded. This is especially true of the Institute schools, where once spacious buildings now at times have two to three groups in one room. In addition some Federal and State schools were still housed in wattle huts. These are built in Indian or modified Indian styles, walls need constant replastering, floors are of dirt, roofs thatched, there are at best a few tiny windows, and lighting is very poor. These buildings were always too small for their student bodies. Many new buildings were observed in use prior to completion. In eight schools there were dirt floors. In seven schools windows had not been installed, there were just holes in walls. It may be noted that all schools tended to be much more crowded than is common in the United States.

Basketball courts were encountered at all schools, with the exception of one where it was located in a village square a few yards away. Other sports facilities were rare. Many Federal schools did have some facility for theatrical events, often a raised open-air platform. Only one such structure was encountered in an Institute school.

A farm field, vegetable garden, or orchard, or more than one of these, was found in about 54 per cent (7 of 13) of Federal or State schools and 92 per cent (12 of 13) of Institute schools. There were no pens for animal husbandry in any of the schools. Flower gardens were found in only two State schools. Carpentry workshops were encountered in only one Federal school and four (31 per cent) Institute schools; in schools which did have carpentry workshops, the tools were generally missing or broken. It appeared that when the men of the community had a job to do they then stocked up on tools. It also appeared that neither students nor members of the community were encouraged to use the workshops. However, the Indians often improvised woodworking tools (for example, a stone could serve as a hammer).

Latrines were found in all but one State school and all but one Institute school, most of them in serviceable condition. Baths were encountered in one Federal and three Institute schools. No clinics were encountered; on the contrary, this investigator was frequently approached for medicine. One attempt at creating a local museum was encountered in a Federal school. Books, other than texts, were encountered in three Federal and six Institute schools (23 and 46 per cent respectively). However, there was no evidence of their functioning as a library; this was so even in communities where many of the youths were semi-literate and one or two used their literacy for economic gain, such as by running a store or clinic. Teachers were generally available to their communities as public secretaries. It was this investigator's impression that they rarely charged for their services, especially when the communities were located far from San Cristobal.

Sewing facilities were encountered in one Federal and three Institute schools. The only public laundries encountered were in two Institute schools.

All schools included some form of housing and cooking facilities for teachers. These facilities varied from several well-built buildings, including one six-room stucco house, to dilapidated shacks or a partitioned section of a classroom. All schools had some cooking facilities for the free school breakfast. Only one Federal and one Institute school had actual dining facilities; in the other schools students sat in the school yard to eat. Visitors' quarters were encountered in one Federal and four Institute schools. When Institute buildings were first constructed they almost always included visitors' rooms but with the ensuing growth of the schools these spaces have been pressed into service for classrooms, teachers' quarters, offices, or storerooms.

Equipment and Supplies

The Secretariat of Education supplies the following educational materials to its schools:

Free textbooks for all students
Notebooks
Chalk (white and colored) and erasers
Pens and ink
A set of 32 maps
Pictures of national heroes
Poster paper
Geometric models
Tools for drawing geometric figures on blackboards and paper

In addition the Federal Government sets the standards for construction of desks and benches for students and the construction of blackboards for teachers' use (Gonzales 1965). There is an assumption that rural communities will construct their own furniture or pay for its construction (Gallo M and Gutierrez 1963).

The State of Chiapas supplies no equipment to the schools; it has not done so since teachers' salaries were raised in 1936. Whatever equipment and supplies are evident in the schools are supplied by parents and teachers (Santiago 1965).

The National Indian Institute supplies its schools with much the same materials as the Federal Secretariat of Education; it does not supply poster paper but does supply the following additional items:

Reading primers in the mother language
Letter and number masonite flash cards
Flannel boards
Small colored sticks to be used in the teaching of colors and numbers
Propaganda posters which most often deal with health and sanitation (Santiago M. 1965)

In the field it was observed that all schools provided some form of seating and some writing surface for their pupils. However, the quality and quantity of these varied greatly from one school to the next. As the schools have expanded in the past few years the amount of furniture has tended to not keep pace with the number of students in the classroom. All classrooms visited would appear crowded by our standards. The only classrooms in which children were not squeezed three or four to a desk designed for two were those where attendance was minimal on the day of testing. The quality of the furniture varied from new and approved, to inappropriate in size, broken, or unfinished; often benches and tables appeared to have been newly hacked out of large logs with machetes; all furniture was wooden and poorly constructed; in almost all schools some or all of the students sat on backless benches rather than on chairs. All schools provided some form of chalk board for teachers, but again this was generally of poor quality, in some schools a shiny black linoleum cloth tacked on a wall; chalkboards were generally hard to write on and harder to read, but gave evidence of much use. Slightly over half of the schools had some additional furniture for teachers, such as a table and chair of adult size. Only two bookcases were encountered in all of the 26 schools visited.

All schools were very poorly supplied by our standards. All had chalk, although many teachers guarded it closely; erasers were encountered in only about half of the schools. All schools had the free Federal textbooks, but often these did not correspond to students' grade placement or to their skills. Pictures, charts, or maps, were encountered in about half of the schools. Large demonstration devices, such as large clocks or counting frames, were encountered in three Federal and 10 Institute schools. Educational games, such as word lottery or number lotto, were found in one State and five Institute schools. Local materials which could be adopted to teaching, such as the one museum mentioned or a collection of stones for math work, were found in a total of three schools, one in each of the three systems. Books other than texts were encountered in three Federal and six Institute schools. There was one typewriter in a State school.

Class Size and Composition

Fifty is the generally accepted class size throughout Mexico; in State schools official registers should not exceed 50. However, actual rural class sizes are larger. Nationally, inscription averages about 57 and ranges between 45 and 95 (Paz Sarza 1964). Absence reduces this, although printed statistics or reliable estimates were not available.

There is not much correspondence between age and grade placement. The age of initial school registration varies considerably; promotion is generally based on passing yearly exams, so that throughout the nation about 30 per cent of students have repeated once or more (Flores 1961:32). Students beyond the age of 14 are not supposed to be enrolled in primary day schools, but in 1959 approximately 23 per cent of youngsters aged 14 were in Grade One (Flores 1961:33).

Nationally, approximately 52 per cent of the students are boys and 48 per cent girls (Flores 1961:32).

Average class size throughout all Institute schools was 60 in 1963 (Romano 1964a:36). In 1964 girls composed approximately 29 per cent of school populations in the Chiapas Highlands; the percentage of girls has increased markedly since the 11 per cent of 1952. Average attendance was 69 per cent of total enrollment in 1963; girls had slightly poorer attendance records than boys (Romano 1964a:43).

Average class sizes encountered during visits to State and Federal schools was 58, of which 30 per cent were girls; average class attendance was 39, or 67 per cent of enrollment; of those present approximately 28 per cent were girls. In Institute schools average class enrollment was 43, of which 36 per cent were girls; average class attendance was 27, of which 36 per cent were girls. An average of 62 per cent of those enrolled were in attendance.

No reliable data was available on ages. In the course of supplying identifying information for this study students were asked to state their ages; they were uncertain of their chronological ages, generally guessed, and often guessed quite wildly; other guesses, such as the teacher's or this investigator's, were at least as inaccurate.

Students who appeared to be older than fourteen were encountered in all schools. It was this investigator's impression that any person who presents himself to the school for enrollment as a full-time student is accepted, regardless of age; young men of possibly 18 or 19 were encountered as full-time students in almost every school.

Teaching Personnel

There is little material published on teaching personnel by either the Secretariat of Education or the National Indian Institute.

Large class sizes and the number of children six to 14 not in school, estimated to be over threemillion (Flores 1961:29), indicate a need for additional teachers. If there were one teacher per 50 children there would be close to 160,000 teachers; there are probably half of this number working now. Educational requirements have been relaxed to include not only graduates of Normal Schools but also those who have finished secondary education (Secretaria de Educacion Publica 1963:111). The increase of classrooms and teaching positions is planned to be gradual (p.103) but the hope is to supply one teacher and one classroom for every 50 school age children throughout the nation by the end of this decade. In-service education is supplied by the Federal Teacher Training Institute (Instituto Federal de Capacitacion de Magisterio). In 1963 almost 29,000 teachers were enrolled in the Training Institute.

The Federal government is now reputed to pay its teachers between 1,310 and 1,860 pesos monthly in both urban and rural schools

(Secretaria de Educacion 1963:115). In addition, the Federal government lists a position called promotor, with lower scholastic requirements and lower salaries.

In Mexico the stereotype of the primary teacher is that of a man; although statistics were not available, men appear to predominate in elementary as well as secondary education; only five of 47 (11 per cent) of teachers observed during the course of this study were women.

The National Indian Institute hires promotores only, although many teachers (110 in 1964) who were originally hired as promotores have since been placed on the Federal payroll as teachers. In 1965 more people applied for promotor positions than there were jobs available. The Institute now requires a sixth-year primary certificate for promotores, although many of those hired originally were barely literate themselves. It has also set a minimal age for promotores at 18 (Santiago M. 1965).

Not all teachers were encountered in the schools visited, but for those present the average age in Federal and State schools was 28, ranging between 20 and 41; the average age in Institute schools was 25, ranging from 17 to 43. The slightly older average age of teachers in the State and Federal schools may be a result of these schools' generally longer existence. Fourteen per cent of Institute teachers were women (four of 28); only one of 19 Federal and State teachers was a woman. Of the 28 Institute teachers interviewed, three were not Indians; of the 19 Federal and State teachers interviewed, four were Indians; two worked in State schools and two had been placed in schools founded by the Federal government during the month preceding the interview. Slightly over half of the Institute teachers interviewed were on the Federal payroll. All but two State teachers and all Federal teachers were paid according to the Federal scale. Estimated monthly Federal take-home pay was approximately $1,000 pesos ($80 U. S. currency); promotores approximated their take-home pay to be $700 pesos ($56 U. S. currency). It is difficult to estimate the buying power of these salaries, but rural teachers were observed to maintain a standard of living almost as low as that of their Indian neighbors. Payments were often irregular, frequently delayed for months, sometimes a full year or more; at those times teachers were free to borrow at high interest rates. The two State teachers not being paid on the Federal scale received less than $200 pesos monthly ($16 U. S. currency).

Institute teachers averaged five years of teaching experience, ranging from new appointees to those who had been with the system for the 12 years it had been in existence. Federal and State teachers averaged seven years of experience, ranging from new appointees to one man with 23 years of experience. Institute teachers averaged a pre-service education of six years (primary school); they ranged from those who had only two years of primary schooling prior to their initial appointment as promotores to those who had completed six years, plus two Federal teachers newly appointed to Institute schools who had finished the 12 year Normal School cycle. In State and Federal schools, pre-service training averaged nine years, the range was also from two to 12 years.

Teachers who have not completed Normal School are encouraged to attend in-service equivalency courses. Of 23 Institute teachers (neither newly appointed, nor the two Federal teachers with Normal School Certificates) there was an average attainment of one year's additional schooling in two; the average educational preparation of Institute teachers is now nine years, ranging from six to 12 years. It appears from these statistics that all Institute teachers have had some in-service training.

In the Federal and State schools, of the nine teachers who had not completed Normal School and who were not new appointees, there has been an average attainment of one year's additional schooling in five. The average educational level is now ten years, ranging between six and 12.

Instructional Methods

When Torres-Bodet proclaimed the educational reform he called for major changes in teaching methods and curriculum, with content related to children's daily lives and teachers to use first-hand experiences and a "global" approach closely akin to our "activity" method (Villareal 1962:38). There was no mention in the available materials of a program for teaching Spanish to non-Spanish speaking children.

The new curriculum advocates six areas of study:

1. Health education
2. Natural Sciences

3. Social studies
4. Creative activities such as music, art and dance
5. Practical activities such as shop and domestic science
6. Elements of culture--reading, writing, and arithmetic, but not creative language or mathematical activities (Consejo Nacional Tecnico de la Educacion 1962).

The daily schedule should begin with general activities, such as health and room inspection, attendance, and perhaps patriotic ceremonies. These are to be followed by a "systematic" study of the sixth area (reading, writing, arithmetic), which is to include drill and formal lessons. The remainder of the school day should be divided among the remaining four areas, preferably in global fashion (Villareal 1962:145).

Discipline problems do not appear to trouble the authors of this program. It appears to be assumed that students will be quiet and docile, that they will express disinterest through slight restlessness and lack of learning, and that they will express interest through enthusiastic but quiet participation. There is no suggestion of the authority of the teacher being broken down or questioned; neither is there any mention of discipline problems.

In Institute schools the advocated instructional methods are generally the same as in Federal and State schools, the major difference being in the existence of the preparatory year. For preparatory students, teachers are encouraged to use a variety of materials, such as flannel boards, flash cards, colored stocks, and lottery games to elicit language learning and reading. The Institute also believes that the teacher is an authoritarian figure, albeit a benign authority. It, too, expects generally acquiescent pupils; however, discipline is discussed. Teachers are instructed to use no corporal sanctions, to treat their pupils gently, and to avoid punishment (Montes 1954). In the preparatory years all Spanish is to be given for a minimum of one hour daily; in addition, time is to be devoted to reading and number work.

In the field some teachers had what appeared to be excellent rapport with their students, to instruct with clarity of purpose and method, and to interest themselves in individual students' academic growth. This was true of both mestizo and Indian teachers; it was true of teachers in Federal, State and Institute schools.

In the majority of classrooms, however, a confused, even irrational, atmosphere tended to predominate. In most State and Federal schools the language barrier between teacher and students and the lack of communication between them was often responsbile for this. The recent Normal School graduates, who were the only teachers who had had any training in the new educational methods, were also the teachers who had the poorest contact with their students. There was little attempt to go beyond an explicit lesson set forth in the Federal textbook. It was also this investigator's impression that pupils expected to digest the book page by page and believed that memorization was the same as learning. Memorization was highly stressed, as it was in the days preceding the educational reform. Indeed, the only evidences of the reform were in the use of the Federal textbooks with their partially relaxed academic requirements, and in a few faded teacher or pupil-made charts. It was also this investigator's impression that the children were generally docile and obedient, striving to understand and obey their teachers. This fits cultural patterns, which stress obedience or avoidance. However, several instances of corporal punishment by Federal teachers were witnessed; these were isolated blows, not formalized whippings. It was this investigator's impression that these acts of corporal punishment were caused by teachers' impatience, not by students' misbehavior; punishments witnessed were not as severe as those reputed to pre-Institute days (Guiterras-Holmes 1961; Castro 1959).

Institute teachers appeared better able to communicate with their students; however, classroom atmospheres appeared to be at least as confused as in the other schools because these teachers had generally little understanding of their subject matter. They appeared to attribute magical power to learning, which fits the Indian belief that literacy is akin to the possession of economic wealth. The better schooled Institute teachers handled the more advanced students; while more sophisticated than their colleagues, they, too, showed little comprehension of their subject matter. Institute teachers appeared to be generally more patient and more respectful of their students, although a number resorted to frequent scoldings and reproofs. The students appeared to be generally more relaxed in the presence of Indian teachers, and when they disliked a teacher were not as obedient away from the classroom (for example, if a disliked teacher interrupted their play to request that they run an errand, they often ignored him).

The rate of teacher absence was high but undetermined. State and Federal teachers are reputed to have a much higher absentee rate than Institute teachers; this observer saw little to either substantiate or negate this allegation.

School hours were flexible and, except where a teacher was inspired to keep his class in session beyond the suggested time, were generally less than the five class hours expected by educational authorities. Two schedules were followed: In schools supervised by Federal inspectors children were in school from nine to two, with a short recess period during the course of the day; in schools supervised by Institute inspectors students were in class from nine to twelve, then had a two or three hour break, and were reassembled for a two hour session in the afternoon. The relaxation of school hours is again not out of keeping with local culture. Students have no clocks; teachers often did not have clocks or watches. It was this investigator's impression that again it was the Institute teachers who held classes for longer hours, perhaps four hours daily, while the State and Federal teachers held classes for perhaps an average of three and a half hours daily. These shortened hours, frequent teacher absences and perhaps even more frequent student absences, indicate that instructional time was considerably shorter for Highland students than it is for students in the United States.

With the exception of one Federal teacher, some variant of the new educational program was followed. Usually teachers guided themselves by a very detailed schedule of activities with textbook and work-book assignments spelled out. However, even these highly detailed instructional manuals do assume that the teacher add further drill. Teachers tended to follow the program, concentrating on the first two area (general activities and cultural elements) with very little attention to the remainder of the program. Natural sciences and social studies, when taught at all, were handled as isolated subjects, dryly, with reading from the texts, teacher lectures, and written questions and answers, usually in incomprehensible Spanish. Social studies was stressed more than natural sciences because of the heavy nationalistic emphasis. Most social studies lessons consisted of polemics about national heroes, who were not humanized nor were their childhoods stressed, and of the memorization and recitation of (to the students) meaningless verses about the glories of the Mexican flag.

This rote and irrational approach was typical for most subject matter by mostteachers, with the exception of reading, where students had to demonstrate the ability to read orally before being judged as "passing." Occasional Institute teachers used the vernacular at times in social studies and natural sciences, but this practice was rare. It must be remembered that most Institute teachers understood little of such subjects and had a poor command of Spanish. In the preparatory year Institute teachers generally followed the procedures outlined in the Institute manual, which calls for the use of a variety of materials; however quite a number, perhaps one-third, gave only cursory language instruction and taught reading through memorization. Spanish lessons were generally held at least one hour a day, and reading, writing, and number drills were included in most daily schedules. Creative and practical activities, other than caring for the school agricultural facilities, were rare, at least partially due to lack of facilities and equipment; they were equally rare in Federal and State schools. Singing was the most common creative activity; it was generally unaccompanied and led by a teacher who himself sang poorly. This investigator was happily surprised by the melodious quality of the singing.

Language Curricula

The Federal and State language curriculum is outlined in the Federal textbooks, workbooks, and instructional manuals. The first year should include an introduction to reading, primarily phonic in approach, beginning with the mastery of the vowel sounds, then consonants, blends, the order of presentation from easiest to most difficult: by the end of the first year students are expected to know the entire alphabet and be able to read by sounding out words. They should also be able to form all letters in cursive script, to know the use of capitals and small letters, also punctuation marks such as periods, question marks, and exclamation points, and to understand some simple grammatical rules dealing with gender and other suffix changes. In the second year silent reading is introduced, as is reading comprehension and the interpretation of written material. Handwriting should be improved, the student should be able to take simple dictation, free composition is begun, previous work is reviewed, and more grammatical rules, of agreement of number and gender, are included. There is a review of the semi-irregular letters in Spanish orthography (r and rr, g, c), accents, and more punctuation marks (Instituto Federal de Capacitacion de Magisterio 1964; Dominguez and Leon 1962; Castro F. 1964). There is no mention in the Federal materials, which are used in the State schools, of preparatory classes for non-Spanish speaking students.

In Institute schools the first and second grade programs are identical with those of the Federal government. The program for the preparatory year is not spelled out in as great detail. Reading should be approached "globally", and be based on primers written in the mother language; no books other than the primers are used. The reading of the primers is to be augmented by flannel-board exercises and the writing of letters and words. Students are taught to write in manuscript, they are not expected to understand the use of capitals or punctuation. Oral Spanish should be taught largely through choral speaking, the vocabulary consisting of things which are a part of the child's life, such as objects in the classroom or the natural environment or parts of the body. Teachers should use complete sentences and children respond with words and, later, phrases. There is no specified vocabulary list (Montes 1954).

During the field study it was observed that since the teachers followed the guides and texts closely, the program in the language areas was generally applied. Students generally stiffened for reading, which was often taught in a rote fashion, each student repeating the same passage.

The Federal materials were unrelated to the lives of the children. The first textbook lesson following the introduction of the vowel sounds is about a teddy bear, for children who know little or nothing about dolls or furry toy bears. The vocabulary consists of: ese oso se aesa (that bear cleans himself). This is placed below a small colored picture of the teddy bear; isolated words follow the main paragraph.

The material in the first Tzotzil pre-primer published by the National Indian Institute also begins with vowel sounds. The first formal lesson is mi mu? (is it tasty?). This is placed below a large black and white picture of a man holding up a fruit and a boy looking up at him. Isolated words follow. In the Tzeltal primer the first consonant lesson consists of the words ja ji (fly, corn), accompanied by their pictures. Isolated syllables follow. After the students can read these primers (a series of two in each language, which include all the sounds they have in common with Spanish) they are introduced to the Federal materials.

Evaluation and Pupil Promotion

Promotion is based on end-of-year examinations. Sixty-eight per cent of children in Federal and State schools throughout the nation, including new entrants in first grade, have never failed a year's work, nor have 66 per cent of those who have dropped out of school. This means that one-third of children in schools in 1959 had failed at least once. When the new entrants in first grade are discounted, 47 per cent have failed at least once, and 18 per cent have failed four or more times. Of those who have failed four or more times, 48 per cent have never progressed beyond first grade (Flores 1961:37). There is no published information available on how parents are informed of their children's progress but it is implied that students know whether they pass or fail at the end of the year.

The Institute did not have published material regarding pupil evaluation.

During the course of field work this investigator heard a number of stories about teachers who administered and graded end-of-year examinations inaccurately in order to show a greater number of students able to pass the examinations. By regrading the reading comprehension sections of some tests and through observing some teachers attempt to help her administer the initial buffer tests of the battery, she has been led to believe that these stories are essentially accurate. However, the practice is probably frequent throughout the nation, not reserved to the Highlands.

Students are informed of their examination grade and promotion at the end of the school year or at the beginning of the next year, by the teacher. A number of teachers assigned written work, which they graded frequently; this was especially noted in Institute schools. Where there is an authoritarian approach to knowledge with a striving for correct answers and little room for dispute, students tend to know when they have answered correctly. Although monthly report cards for parents are common for much of Mexico, yearly cards were encountered in all Highland Indian schools. It must be remembered that such reports to parents have little meaning. Parents are almost universally illiterate; they have little idea of what schooling is about; they expect their children to fail repeatedly. Yearly reports were supplemented by generalized reports of school activities at parent meetings, which were held concurrent with the two principal school fiestas, Mother's Day and Independence Day. In addition, teachers reported to the officials of the local Parent Association whenever called upon to do so, and the committee was often present in the school observing the teachers and students at work. Committees dissatisfied with their teachers have been known to come to school inspectors and even State Directors of Education to complain.

Autonomy

> Teachers (in Federal schools) have autonomy to adapt new curriculum to the needs of their students in their communities. The program is minimal. The teachers should enrich it (Paz Sarza 1964).
>
> Teachers (in Institute schools) tend to be too independent. They do not know enough to do a better job on their own and now that they have gone to the Training Institute and received a different orientation, they will not listen to us (Santiago M. 1965).

With the exception of the few recent Normal School graduates, none of the teachers encountered had the educational background to modify the Federal curriculum constructively; the Normal School teachers lacked the ability to communicate with their students and therefore could not do so either.

Other indications of autonomy were found in the typical Mexican reaction of passivity. If one does not receive instructions (not hear them), he cannot react. It is a form of avoidance when one cannot remove himself physically from the written instructions or the lecture of his supervisor; it is in keeping with the national culture and especially the Indian culture of outward obedience and a show of respect for those of higher authority, or avoidance. This negative or absentee reaction was frequent among all teachers; however, few teachers evidenced the interest, character, or educational background, which would allow them to function independently. Those who did function independently did so generally in the area of community development and not in the improvement of the academic curriculum.

CHAPTER V

THE MEASUREMENT OF READING COMPREHENSION

In order to evaluate the hypothesis of this study, that children of linguistic minorities learn to read with greater comprehension in the national language when they receive all reading instruction in that language rather than when they first learn to read in their mother tongue, it was planned to:

1. Select an equal number of bilingual and all-Spanish schools in each of three Indian tribal areas (municipios) in the Highlands of Chiapas, Mexico;
2. Identify, describe, compare, and contrast, the organizational practices and language instruction programs of the selected schools;
3. Develop and evaluate an instrument for measuring the Spanish language reading comprehension of the students of the selected schools;
4. Measure the national language reading comprehension of these students;
5. Determine whether youngsters taught reading in Spanish only read with significantly greater comprehension in the national language than did those who first became literate in their mother tongue.

Of the above, the first and third sub-problems are discussed in this chapter; the second has been dealt with in Chapter IV; the fourth and fifth form the bulk of Chapter VI.

Selection of the Sample

There are 15 predominantly Indian *municipios* (tribal areas) in the Highlands of Chiapas where both approaches to reading instruction are practised. It was decided to pursue this study in the *municipios* of Chenalho, Oxchuc, and Zinacantan, because of differing prevailing attitudes toward schooling and because of the availability of several schools representative of each approach within each *municipio*. Of all the Highland tribes, Oxchuc is considered by anthropologists and educators to be the most progressive in matters of community development and education; Zinacantan is considered to be the most conservative (Cancian 1965:12-13; Montes S. 1959; Romano 1964b; Slocum 1956). It was decided to include an additional intermediary *municipio*, for which purpose Chenalho was selected.

It was planned to match schools within each tribal area. Many of the criteria normally employed in equating school populations in the United States cannot be applied to Highland Indian schools, for these criteria are foreign to Indian culture. Age is measured by Indians according to a child's relative position within the family, not by a count of years (Modiano 1962), therefore children do not know their ages. Wealth is considered too personal for discussion (Hopkins 1966). Scores on existing intelligence tests take a number of culturally determined experiences for granted (Klineberg 1935;

Modiano 1962). Data such as ages, I.Q.'s, or economic status, even when obtained, are highly unreliable and therefore not suitable for equating schools within a municipio.

However, it was considered necessary to demonstrate that students in Federal and State schools were the same as those in Institute schools in all respects save schooling. Anthropological investigators have until now treated the municipios as units, not differentiating among the various parajes (hamlets) (Colby 1959a, 1961; Guiterrez-Holmes 1948, 1961; Pozas 1959a, 1959b; Siverts 1956; Slocum 1956). While data such as the I.Q., age or economic status, of individual students might be considered too unreliable for equating school populations, other data regarding the hamlets, such as estimates of population, climate, crops, sources of cash income, diet, health, religious affiliation, and contact with the outside world (in this case the presence of mestizos in the hamlet and frequency of Indians' visits to San Cristobal), were available; they were obtained for the purpose of equating the populations from which the schools drew their enrollments (see Table 1).

Prior to entering the schools of Oxchuc, the President of the municipio was interviewed about every hamlet which maintained a school to obtain the information mentioned above. Based on his report, five hamlets maintaining bilingual Institute schools were matched with the five hamlets which maintained Federal schools. In Zinacantan only a few schools had been in operation for more than five years; the three

Table 1. Demographic Data for the Sample Schools

Municipio	School System	Paraje	Population	Climate[1]	Diet[2]	Health[3]	Outside Contacts[4]	Principal Sources of Income[5]	Proportion of Catholics
Chenalho									
	Federal	Acteal	500	T	A	A	1	A	1.00
		La Libertad	326	T	A	A	1	B	1.00
		Yabteclum	1099	T	A	A	1	A	1.00
	State	Chojolho	217	T	A	A	2	CE	1.00
		Osilicum	350	T	A	A	2	A	1.00
	Institute	Polho	550	T	A	A	1	A	1.00
		Shunuch	365	T	A	A	2	B	.80
		Takiukum	565	T	A	A	1	A	1.00
		Yaxalumil	204	T	A	A	1	A	1.00
		Yibeljoj	400	T	A	A	1	A	1.00
Oxchuc									
	Federal	Lelenchig	563	C	A	A	2	BD	.90
		Colonia Niz	776	C	A	A	3	BD	.95
		Rancho de Cura	570	C	A	A	2	BCG	.50
		Tzay	647	T	B	A	3	AB	.50
		Yochib	890	T	B	A	3	AB	.60
	Institute	Paxtontikja	600	T	A	A	2	AB	.20
		Tolbilja	620	T	B	A	2	ABD	.50
		Tuxakilja	554	C	A	A	2	AB	.70
		Tzontealja	675	T	B	A	1	AB	.50
		Tzopilja	759	C	A	A	2	ABC	.85

Table 1. (Cont.)

Municipio	School System	Paraje	Population	Climate[1]	Diet[2]	Health[3]	Outside Contacts[4]	Principal Sources of Income[5]	Proportion of Catholics
Zinacantan									
	State	Nachig	900	C	A	P	3	AB	1.00
		Navenchauc	4025	C	A	A	4	AF	1.00
		Zekentik	275	C	A	A	3	C	1.00
	Institute	Elambo	511	C	A	A	3	AC	1.00
		Granadilla	458	T	B	A	3	AC	1.00
		Paste	1247	C	A	B	3	A	1.00

1. Climate at the school house
T = temperate (up to 6000 feet above sea level)
C = cold (above 6000 feet)

2. A = average (corn, beans, chile, vegetable greens, little fruit)
B = better (all of the above, plus tropical fruits in season)

3. Based on frequency of contacts with medical help including native healers, estimates of infant mortality, and estimated average age of adult deaths
A = average
B = better
P = poorer

4. 1 = little (no mestizos in residence, men visit San Cristobal an average of up to four times yearly)
2 = some (mestizos visit the paraje and live near-by, men visit San Cristobal up to twice monthly)
3 = frequent (same as above, but men visit San Cristobal up to twice weekly)
4 = constant (almost daily contact with mestizos)

5. A = sale of crops
B = plantation labor
C = local day labor
D = small scale aviculture
E = small scale animal husbandry
F = small scale commerce
G = alleged remnants of serfdom (valdage)

Institute schools which fell within this catagory were all located near the Pan American Highway; there were also three State schools located near the Highway, which had been in operation for more than five years, and these, too, were chosen for testing. In Chenalho there were six Institute schools and eight Federal or State schools; it was decided to omit the schools farthest from the cabezera (the seat of municipal government and the religious center), and those with many students from other tribes.

In all, 26 schools were selected for testing. There were 10 each in Oxchuc and Chenalho, and six in Zinacantan. In each municipio, half of the selected schools had been founded by the National Indian Institute and practiced a bilingual approach to literacy teaching; the other half had been founded by the Federal or State governments and offered all reading instruction in Spanish.[1] As the schools were visited the teachers were interviewed regarding their hamlets (see Appendix A). Although the data supplied may have been somewhat inaccurate, they did serve as a further check on the equality of the two groups of schools within each municipio.

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[1] In some monolingual schools the teachers did speak Tzeltal or Tzotzil to some degree, and may have used it in conversation with their students or when explaining other subject matter; one or two may have used it to translate the material in the reading textbook. However, no reading instruction as such was offered in the mother language. Instead, a Spanish word was presented orally and in written form in even the earliest stages of reading instruction; upon hearing the Spanish word and seeing the letters, children were expected to link sound and sight and form a concept of the sound of each letter.

Development of the Group Test of Reading Comprehension

The few tests developed in Mexico which purport to measure reading comprehension have not been evaluated for reliability or validity, and deal with subject matter foreign to Highland Maya children. Although it has been shown that translated tests can measure comprehension in a second language (Callicut 1942), test from other countries, even when standardized, are not suitable in subject matter. The only reading tests which might have served for this study were those of the National Indian Institute, but they, too, had drawbacks. They have never been analyzed for reliability or validity; they are only about ten questions long; and they, too, presuppose an informational background, some of it quite academic in nature, and skill in writing. Typical items taken from the Institute's First Grade Promotional Examination of 1962, include:

Maria is a __________________________(girl).
A dog is an__________________________(animal).
Zinacantan is a________________________(_municipio_).

The question in Zinacantan was used in all _municipios_, including those which have no contact with it.

Because of the limited value of available reading comprehension tests, it was decided to develop a new instrument for this study. In 1959 a first draft, based on the lives of Highland Maya children, consisting of 20 multiple choice vocabulary items, 10 of them antonyms, and 30 paragraph interpretation open-ended questions, was administered to 69 students in Institute schools in four _municipios_. It was observed that the students had difficulty in answering the open-ended questions, although not the multiple choice items. The format for paragraph interpretation was then changed to its current true-false form and a section for following written directions was added. The revised 62 item instrument was administered to 74 Tzeltal-speaking students in Institute schools. It was then translated into Tzeltal by two Indian teachers; four months later it was administered in the mother language to 161 students in the same schools. Although, for the 54 who took both tests, the experience of having taken the first may have affected their work on the second, it was felt that such an effect would be minimal.[2] The internal reliability of the Spanish test was .885, using the split-half method. The correlation between the Spanish and Tzeltal tests was .627 (n = 54).

It was then decided to enlarge the vocabulary section of the Spanish test, for which purpose an additional set of 80 picture-vocabulary and phrase reading items was devised. These were administered to 106 students in Institute schools in three municipios, and the frequency of correct responses for each item computed. Based on these frequencies, the vocabulary and phrase reading sections of the final test instrument used in the present investigation were cut to a total of 50 items, carefully graded from the easiest to the most difficult (see Appendix B). The original 10 antonyms, 12 following of directions, and 30 paragraph interpretation, items were retained.

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[2] Colby (1959b) has shown that Highland Indians tend to forget experiences foreign to their normal way of life rapidly. This investigator, too, found that without frequent practice students forgot newly learned test-taking skills within about two weeks.

During the course of the final study, the test was first administered to students in Chenalho. An analysis of the items revealed that the section of the test containing antonyms was not productive; it was therefore eliminated in further administrations of the test and responses to this page were ignored in computing final scores for Chenalho.

The Group Test as Used in the Study

The group test as used in the study consists of 88 items (see Appendix B). Sample items are included at the beginning of two sections, but are not set apart from material to be graded. The first section consists of 25 multiple choice picture identification vocabulary items, three of them samples; all correct responses are nouns. In this, as in all subsequent sections, care was taken that the items were common to the lives of Highland Maya children.

Vocabulary tests similar to this can be found in:

Basic Reading Tests (Gates 1958a)
California Achievement Test (Tiegs and Clark 1957)
Developmental Reading Tests (Bond, Clymer, and Hoyt 1961)
Metropolitan Achievement Test (1961)
Test de Destrezas Basicas en Lectura (1961)

The next section, which is not set off from the first, consists of 25 multiple choice items for which a descriptive phrase must be matched with an accompanying picture. The three phrases for each item are alike with the exception of the verb. Similar picture-phrase matching tests are included in:

Basic Reading Tests (Gates 1958a)
California Achievement Tests (Tiegs and Clark 1957)
Metropolitan Achievement Tests (1961)

The next section of the instrument contains 12 items which call for the following of one-phrase directions. Similar sub-tests are included in:

Basic Reading Test (Gates 1958a)
California Achievement Tests (Tiegs and Clark 1957)
Developmental Reading Tests (Bond, Clymer, and Hoyt 1961)

The remainder of the instrument consists of paragraph interpretation. There are nine stories, the first two to be used for demonstration purposes. Each story is accompanied by an average of four sentences which must be marked yes or no (true or false). Of the 30 such sentences to be graded, 22 repeat the vocabulary of the story with few changes, four use synonyms, and four call for inferences.

Paragraph interpretation is considered to be the essence of reading comprehension. It was used by Thorndike in his pioneering study (1917) and has been used ever since (see Chapter II, pp 14 to 18). Among reading comprehension tests in current use, tests of paragraph interpretation may be found in:

Basic Reading Tests (Gates 1958a)
California Achievement Tests (Tiegs and Clark 1957)
Developmental Reading Tests (Bond, Clymer and Hoyt 1961)
Durrell Analysis of Reading Difficulty (1955)
Metropolitan Achievement Tests (1961)
Primary Reading Profile (Stroud, Hieronynous and McKee 1955)
Test de Destrezas Basicas en Lectura (1961)

Most of the drawings used in the instrument were contributed by Esperanza Lozada and Marcelino Jimenez, staff artists of the National Indian Institute; there are also a few of the investigator's drawings.

She composed the prose selections, which were translated into Spanish with the help of two Mexican teachers who had had considerable experience in Indian education: Evangelina Arana, teacher, anthropologist, and linguist, who helped establish the educational program of the National Indian Institute in Chiapas and elsewhere, and has written several reading primers for use in other Indian areas; and Fidencio Montes Sanchez, who was Director of Education for the Institute in the Chiapas Center from its earliest stages until 1963.

After analyzing the test scores obtained in Chenalho, the first municipio to be studied, it was discovered that while the statistical measure of validity planned for the study (the correlation between teachers' estimates of pupils' reading comprehension and scores on the reading test) did indicate some validity ($r = .443$, $n = 84$), it was not as high as might be desired. It was therefore decided to procure additional indications of reading comprehension, in order to further evaluate the validity of the group reading test. One such indication would be students' scores on the reading comprehension sections of the yearly promotional examinations. Another would be an estimate of reading comprehension to be obtained from an individualized reading test.

The Individualized Reading Test

In order to supply an additional indication of reading comprehension in Spanish, an individualized test of reading comprehension (see Appendix C) was developed by the investigator. Stories printed by the National Indian Institutte during its first years in Chiapas, dealing with the life or legends of the Highland Maya, many graded according to reading difficulty, and all long out of print, were used for this purpose.

The test consists of a total of nine of these stories, each typed on a sheet of letter-sized paper, below which are typed some questions. The first story (which names the local municipio, uses the name of the patron saint, and names a neighboring municipio) was changed for each tribe; in this story the first question is answered by naming the municipio. All other questions are answered yes or no (true or false): in addition students were expected to point out where in the body of the story the answer was located. The easiest stories are typed two to a page, the others stand alone. Individualized tests of reading comprehension consisting of a story followed by questions can be found in:

Diagnostic Reading Scales (Spache 1963)
Durrell Analysis of Reading Difficulty (Durrell 1955)
Gilmore Oral Reading Test (Gilmore 1951)
Informal Reading Inventory (Betts and Welch 1964)

During the administration of the test, the student was asked to read the first story aloud; the investigator then read the first question to him, to which he was to respond. If he appeared to need help, the question, but not the story, was repeated by her assistant in the mother language. For the first story only, responses were corrected; if it appeared that he still did not understand what was expected, the correct response was pointed out in the body of the story, and he was again asked to point to the correct answer. Responses were considered correct when the student could both answer the question correctly and indicate where in the body of the story the answer was located. The student was tested until it appeared that he could not understand what he was reading; the criterion was that he miss at least two thirds of the questions on two consecutive short or one long story (see Table 2). Scoring procedures similar to this can be found in:

Cattell Infant Intelligence Scale (Cattell 1960)
Diagnostic Reading Scales (Spache 1963)
Informal Reading Inventory (Betts and Welch 1964)
Stanford-Binet Intelligence Scale (Terman and Merrill 1960)
Wechsler Intelligence Scale for Children (Wechsler 1949)

The test was first administered to 84 students in the large centralized school of the Tzotzil-speaking municipio of Chamula; although the school was founded jointly by the Institute and the Federal Government, it used the bilingual approach. It was chosen for the initial testing of the individualized instrument because it had a sizeable number of upper grade students, thus permitting evaluation of the upper ranges of the instrument. After all the students in grades one to five had been tested, individually and on the group test, scores on the group and individualized tests were correlated. They showed a Pearson's r of .748 (n = 77). This was taken to indicate that the individualized test did appear to measure some aspects of reading comprehension. Testing in Chenalho was not repeated, but the individualized test was administered in Oxchuc and Zinacantan.

Table 2. Scoring Key for the Individualized Reading Test

Score	Explanation
0	Cannot answer two of three questions in test 1a, with instructions and questions given in the mother language
	Misses at least four questions on tests:
1	1a-1b
2	1b-2a
3	2a-2b
	Misses at least four questions on test:
4	3
5	4
6	5
7	6
8	7

Collection of the Data

Since the environment in which these schools exist is different from that commonly encountered in the United States, it may be appropriate at this point to include a somewhat more detailed description of the gathering of the data than would normally be done. The investigator traveled in the company of one or more guides, by horse, and with one or more pack animals. Upon arriving at a school she would introduce herself and present the credentials supplied by the Inspector of the Zone and possibly by the Institute's Director of Education. The investigator and her guides would be housed, usually in the back of a classroom, and the gathering of the data would begin shortly thereafter. The teacher would make a few introductory remarks to the students in Spanish, Tzotzil, or Tzeltal, according to his custom. The investigator would follow these with her own introductory remarks in Spanish, saying that the students should not be afraid, that this was a study comparing many schools, and that they should try to do their best but in no way would be panalized for poor results. This was immediately translated into the mother language by her assistant. Tests were called tests as such (pruebas).

In order to help the students become somewhat accustomed to the test situation and to this investigator and her assistant, three drawing tests were administered prior to the group test of reading comprehension, which was the principal instrument of this study. The purpose of these initial tests was not to obtain data for equating populations, as would be common in the United States, but to provide a buffer period prior to the administration of the group test of reading comprehension. By this process it was hoped that the students would become accustomed to the investigator and her assistant, lose some of their fearfulness, learn that the two outsiders could be depended upon for help and direction, become accustomed to hearing and responding to slightly different speech patterns (the investigator in Spanish and her Indian assistant in both Spanish and the mother language), and become acquainted with our testing procedures. The provision of pre-test experience has previously been shown to be desirable with Highland Maya youngsters (Modiano 1962).

The battery of buffer tests consisted of the Bender-Gestalt (Bender 1946), The House-Tree-Two Person-Animal set (Buck 1948; Schwartz and Rosenberg 1955), and the NYDO (Maccoby 1958). The first two tests were administered in group form to entire classroom groups, by the investigator, who gave all instructions in Spanish, and by her assistant, who translated these instructions into the mother language.

After the Bender-Gestalt and H-T-PP-A were completed, the teacher was asked to indicate which students were able to "... understand what they read in Spanish", for inclusion in further testing in drawing and in reading. This group of students, nominated for further testing by their teachers, was counted, as were those not so nominated. The proportion of students nominated for testing was computed, by approach to reading instruction within each _municipio_. These proportions were later compared to test the hypothesis that significantly larger proportions would be nominated in the all-Spanish schools (see pp. 90 to 92).

The nominated students were first given the NYDO (Now You Draw One) test (Maccoby 1958), which consists of a four-page booklet. On the left-hand side of each page is a drawing (leaf, flower, fish, duck). Above each picture is written, "This is a (name of object)." Above the other half of the paper is written "Now you draw a (name of object)." The investigator read the directions to the students; they were encouraged to read aloud with her. These directions were given in Spanish only.

As the students finished, a rest period was offered, but they often asked to continue. This was taken as an indication that the buffer tests had served their purpose and that the students had become somewhat accustomed to the testing situation, the investigator, and her assistant.

The principal instrument of this study, the group test of reading comprehension, was now administered (see Appendix C). After the students had filled in the identifying data, the three sample items accompanying the first section of the test were demonstrated. The words of each of these items were written on the blackboard. Attention was called to the first drawing, and students were asked to name it, which they readily did. They were then asked to read each of the three words, and to say which named the picture. The investigator drew a large X on the correct response and told the students to do the same on their papers. Every paper was then checked. The pictures to the right and below the first were demonstrated in the same way. The students were then told to continue working with the remainder of the pictures, and their work was again checked to see that they followed the instructions. As each one finished, he was told, individually, to continue with the page of written directions. No additional reading or interpretation was offered at this point. As the students finished this section they were sent out of the classroom to rest, relax and play. When the last student had finished the section of directions and had been able to rest for a few minutes, all were called together again, to complete the test.

The investigator read the instructions and then the first sample paragraph of the final section of the test to the group. She then read the two accompanying sentences. Students were encouraged to give the correct answers. After the first sentence was answered correctly all students were told to draw an X over the correct response on their papers; their work was checked. The same was done with the second sentence. The next sample paragraph was then read aloud, as was the first response sentence; again, the correct response was elicited, students were told to mark their papers, and each paper was checked. The same was done with each of the remaining three sentences. The students were then told to complete the test. As they began to work they were again checked to make sure that all the sample items were answered correctly. As they finished the test, their papers were collected and they were sent outside to play. After all testing had been completed, all the students in a school and all their teachers were thanked and given candy.

In Chenalho the teacher was then asked about his hamlet and school (see Appendix A), and to rank the nominated students according to his estimate of their reading comprehension in Spanish. The school visit ended at this point, and the investigator and her guides proceeded to the next school. They spent an average of half a day traveling between schools, and about a day and a half at each school. The NYDO and group reading test were always administered on the same day.

In Oxchuc and Zinacantan, where the individualized test was administered, its administration began shortly after the group test was completed. In these municipios the length of the school visits varied considerably, depending on the number of students examined individually. Some visits lasted no longer than the one and a half days of Chenalho, while some lasted up to five school days, for an average of two schools per week.

Reliability and Validity of the Group Reading Test

The internal reliability of the group test was determined by the split-half method, using the Spearman-Brown formula. The resulting correlation was .965 (n = 455).

The validity of the group test is demonstrated both by its design, for it uses material common to the lives of Highland Maya children and follows the formats of several tests of reading comprehension currently in use in the United States (see pp. 72 to 73); and statistically. One statistical indication of validity used was a comparison of teachers' estimates of students' reading comprehension with their scores on the group test. Teachers were asked to rank their students. These within-class ranks were converted into standard scores, using Hull's method (1928). Students' scores on the group reading test were also ranked within classes and these ranks were converted into standard scores by the same method. The two sets of converted scores were correlated, giving a Pearson's r of .492 (n = 411[3]; see Table 3).

This correlation (.492) compares favorably with other comparisons between teachers' estimates and test scores (Henig 1949; Kottmeyer 1947; Lee and others 1934); for the purposes of this study it may be considered to be a more than adequate indication of validity (Cronbach and Gleser 1965).

It was felt, however, that the value of the group reading test, the principal instrument of this study, would be enhanced by obtaining additional comparisons. Two such measures were obtained, an individualized test of reading comprehension designed and administered by this investigator, and scores on the end-of-year promotional examinations of the Secretariat of Education. The reliability and validity of each of these measures were not ascertained. However, both did show construct validity.

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[3] The number of cases is smaller than the total sample of 455 because two teachers were unable to rank their students. In one case the teacher was absent and another made the selection. In the other case, the teacher had just been transferred to the school and did not know his pupils well enough to rank them.

Table 3. Correlations Among Four Measures of Reading Comprehension

	Teachers' estimates	Individualized test	Promotional Examination
Group test	.492 (n = 411)	.651 (n = 316)	.572 (n = 104)
Teachers' estimates		.428 (n = 303)	.537 (n = 84)
Individualized test			.561 (n = 97)

The individualized test (see Appendix C), used for subject matter local materials designed for teaching reading to Indians and currently out of print, followed a format similar to individualized tests of reading comprehension currently in use in the United States, and used a scoring system similar to ones found on several intelligence and individualized reading tests also currently in use in the United States (see pp. 74 to 77). The correlation between scores on the group and individualized tests was .651 (n = 316; see Table 3). This compares favorably with other inter-test correlations of group reading comprehension tests and individualized measures of reading comprehension, academic ability, and verbal intelligence (Gates 1958b; Stroud, Hieronymous, and McKee 1957; Van Alstyne 1961).

The other measure which was used to indicate the validity of the group reading test was the comprehension section of the end-of-year promotional examinations distributed to all Highland schools by the Federal Secretariat of Education. These tests are limited in that they consist of only one story followed by five questions; there are no data available on their general reliability and validity; the material, which varies in difficulty according to grade level, is often foreign to the lives of Highland Maya children; and the teachers who administered the tests were often reputed by their inspectors to cheat in the administration or grading of these tests (see p. 61). Nevertheless the tests did follow a format common to reading comprehension tests, of a story followed by questions, and did represent an additional source of evaluative data.

Since the end-of-year examinations differed from one grade to another and the reading comprehension sections were uniformly five questions long, thus giving a maximum score of five at any grade level, it was necessary to first combine test scores into a single scale. To give a student full credit (five points) for each preceding grade would be to imply complete mastery of all preceding material, or that a student scoring zero on the fifth grade test read with greater comprehension than a student scoring five on the fourth grade exam; such an assumption, allowing for no overlapping, would be erroneous. To combine test scores by multiplying them by a student's grade would be to imply that some advanced students could not read, or that a fifth grader scoring zero could not comprehend reading better than a first grader scoring zero; this might be equally erroneous for school systems which promoted only for demonstrated mastery of material.

It was therefore decided to combine the test scores into a single scale, by means of the formula

$$\text{Converted Score} = \frac{5(G-1) + X(G+1)}{2}$$

where G = school grade and X = test score. The expression $5(G-1)$ is an expression of the grade and has the effect of giving credit for all previous grades. The expression $X(G+1)$ is an expression of the test score, and provides for increased weight for higher grades. The converted score is the average of the two. The formula provides for overlapping of scores and increased spread within grades from one grade to the next (see Table 4).

The resulting correlation between the group test of reading comprehension and the comprehension sections of the end-of-year promotional examinations was .572(n = 104; see Table 3). This, too, compares favorably with other correlations among group tests (Finley 1963; Harcourt, Brace and World 1962; Tiegs and Clark 1957).

The correlation between the promotional examination and the individualized test was .561 (n = 97); between the promotional examination and teachers' estimates, .537 (n = 84); between the individualized test and teachers' estimates, .428 (n = 303; see Table 3).

Table 4. Matrix for Conversion of Scores on the Reading Comprehension Sections of the Promotional Examinations

Test Score (X)	School Grade (G)			
	1	2	3	4
0	0.0	2.5	5.0	7.5
1	1.0	4.0	7.0	10.0
2	2.0	5.5	9.0	12.5
3	3.0	7.0	11.0	15.0
4	4.0	8.5	13.0	17.5
5	5.0	10.0	15.0	20.0

$$\text{Converted Score} = \frac{5(G-1) + X(G+1)}{2}$$

CHAPTER VI

TEST RESULTS

The purpose of this study was to examine the hypothesis, implicit in educational policies throughout the United States, that children of linguistic minorities learn to read with greater comprehension in the national language when all reading instruction is offered in that language than when they first learn to read in the mother tongue. To test this hypothesis two indications of reading comprehension in the national language were obtained from students attending schools representing each of the approaches in each of three Indian _municipios_ (tribal areas) in Chiapas, Mexico. Some of these students attended Federal or State schools in which all reading instruction was offered in Spanish; some attended National Indian Institute schools in which literacy was taught in the mother tongue prior to Spanish.

One indication of reading comprehension was teachers' evaluations. On the day of testing they were asked to nominate "...all of your students who are able to understand what they read in Spanish." The proportions of nominated students were computed for each of the sub-groups (approach : _municipio_). The proportions representing each approach were compared, by _municipio_ and for the overall sample, by means of 2x2 Chi-squares (see Table 5). The other indication of reading comprehension used to evaluate the hypothesis of the study was students' scores on the group test of reading comprehension. These scores were compared, by approach, by means of an analysis of variance (see Table 7).

Differences between Proportions

The hypothesis of this study, that students who received all reading instruction in the national language would read with greater comprehension in that language than would students who first learned to read in their mother tongue, was not upheld when teachers were asked to select from among their pupils those who could read with comprehension in the national language. In Oxchuc the proportion of students nominated for testing was significantly greater in schools using the bilingual approach; in the other two municipios the differences between proportions were not significant but did indicate trends in favor of the bilingual approach.

For the overall sample approximately 20 per cent of the students in the all-Spanish Federal and State schools were nominated for testing. Approximately 37 per cent were nominated in the bilingual Institute schools. This difference favors the bilingual approach beyond the .001 level of probability (Chi-square = 53.135; see Table 5).

In Chenalho approximately 23 per cent of the students in State and Federal schools were nominated for testing. Close to 25 per cent were nominated in Institute schools. The difference is not significant (Chi-square = .216), but does show a trend in favor of the bilingual approach.

In Oxchuc approximately 15 per cent of the students in Federal

Table 5. Proportions of Students Nominated for Testing

Language of Initial Reading Instruction	Total	Chenalho	Oxchuc	Zinacantan
National Language (Federal and State Schools)				
Nominated	165	66	54	45
Not Nominated	647	227	313	107
Total Attendance	812	293	367	152
Proportion Nominated	.203	.225	.147	.296
Mother Language (Institute Schools)				
Nominated	290	49	187	54
Not Nominated	499	150	273	76
Total Attendance	789	199	460	130
Proportion Nominated	.368	.246	.407	.415
Total				
Nominated	455	115	241	99
Not Nominated	1146	337	586	183
Total Attendance	1601	492	827	282
Proportion Nominated	.284	.234	.291	.351
Chi-square	53.135	.216	66.512	1.331
d.f	1	1	1	1
p.	<.001	NS	<.001	NS

schools were nominated for testing. Approximately 41 per cent were nominated in Institute schools. This difference favors the bilingual approach beyond the .001 level of probability (Chi-square = 66.512).

In Zinacantan close to 30 per cent of the students in State schools were nominated for testing. Close to 42 per cent were nominated in Institute schools. Again this difference is not significant (Chi-square = 1.331), but does show a trend in favor of the bilingual approach.

The teachers had been asked to indicate "...all of your students who can understand what they read in Spanish"; beyond this they were not helped to define their criteria for reading comprehension. Could it be that Institute teachers were less stringent in their selections? An examination of the scores on the group reading test will help to clarify this question.

Differences on the Group Reading Test

Again the hypothesis of this study, favoring the monolingual approach to reading instruction, was not upheld; there was a significant difference between scores in favor of the bilingual Institute schools.

The mean score on the group reading test in State and Federal schools was 41.59; in Institute schools it was 50.30 (see Tables 6 and 7). When scores on the group test were compared, using an analysis of variance (Edwards 1965:140-148), the difference between these means was found to be significant at beyond the .01 level of probability

Table 6. Distributions of Scores on the Group Reading Test

Language of Initial Reading Instruction	Total	Chenalho	Oxchuc	Zinacantan
National Language (Federal and State Schools)				
Mean	41.59	32.91	47.20	47.60
SD	19.44	20.85	16.81	14.98
Range	0-81	0-81	14-75	19-76
Median	41.09	26.50	47.83	50.00
Number	165	66	54	45
Mother Language (Institute Schools)				
Mean	50.30	46.14	50.75	52.52
SD	18.78	14.89	18.42	22.28
Range	0-84	14-73	2-84	0-84
Median	51.93	47.75	60.25	60.83
Number	290	49	187	54
Total				
Mean	47.15	38.55	49.96	50.28
SD	19.48	19.67	18.13	19.46
Range	0-84	0-81	2-84	0-84
Median	49.10	30.20	41.52	52.15
Number	455	115	241	99

Table 7. Analysis of Variance of the Group Reading Test

Source	SS	DF	MS	F	P
Language of Initial Reading Instruction	4879.899	1	4879.899	14.122	$<.01$
Municipio	7519.924	2	3759.962	10.881	$<.01$
Interaction	5035.012	2	2517.506	7.285	$<.01$
Residual	155153.297	449	345.553		
Total	172588.132				

(F = 14.122). Within each municipio mean scores in Institute schools were higher than in Federal and State schools. It thus appears that Institute teachers, who selected larger proportions of their students for testing, were at least, if not more, stringent in their nominations than were teachers in Federal and State Schools. Not only did the teachers using the bilingual approach nominate more of their students for testing, but their students scored higher on the group test of reading comprehension.

Differences among the municipios did not support initial expectations either. Chenalho, Oxchuc, and Zinacantan were selected because of their differing attitudes toward schooling. Oxchuc was considered to be the most enthusiastic, Zinacantan the most resistant, and Chenalho somewhere in between. On the group test Zinacantan averaged the highest (50.28), Chenalho the lowest (38.55), and Oxchuc in between (49.96). The mean for Oxchuc is heavily weighted in favor of the Institute schools (187 were tested in Institute schools as against 54 in Federal schools); an unweighted mean would be closer to 44. Had the numbers for each approach been approximately equal in the other two municipios the overall mean for Chenalho would have been about 40; in Zinacantan it would have been about 50. These differences among the municipios are significant at beyond the .01 level of probability (F = 10.881; see Table 7).

Why did students in Zinacantan, initially expected to score lowest, score highest on the group reading test? During the course of the field study, observing the youngsters in school and at play, this investigator came to feel that those of Zinacantan and of neighboring Chamula (not included in the sample) were, as a group, considerably brighter at learning school tasks, including literacy, than were their peers in other Highland municipios. This impression was based not so much on the test scores as on the greater speed with which they appeared to learn their lessons, their out-going, questioning, even "fresh" behavior with one another, with teachers, and with other persons in authority roles, and their readiness to question and rephrase newly learned concepts. This impression, with the concurrent question of how youngsters of a "culturally very disadvantaged" group become so bright, merits further study.

It has also been argued that the people of Zinacantan and Chamula have become more resistant to acculturation than have any other Highland tribes because of their greater contact with mestizos for many years (all of the Zinacantan schools visited during the course of this study were located on or near the Pan American Highway). This greater contact, while awakening increased resistance to acculturation, may have more recently awakened a greater understanding of and motivation toward literacy than in the more remote municipios.[1]

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[1] Zinacantan and Chamula have basically the same economy as do the other Highland municipios, but less land per capita is available for cultivation; few men can plant a sufficient food supply for their families. To supplement their crops many Zinacantecans rent or buy land for corn cultivation in near-by lowlands; Chamulas resort more to the sale of home-manufactured items, especially liquor, or to salaried labor away from the municipio. Each of these groups trades more in San Cristobal than does any other.

Other Data

Additional evidence points toward the greater efficacy of teaching literacy in the mother language (see Tables 8 and 9). While all school systems enrolled approximately the same proportions of total hamlet populations, and the Federal and State schools could boast of a somewhat higher school attendance (Chi-square = 5.959, df = 1, p. .05), other signs, such as levels of adult literacy and proportions of literate girls, indicate that schools using the mother language reached their communities with somewhat greater effect. There was a higher degree of adult literacy in Spanish in communities served by bilingual Institute schools, even though these schools had shorter histories (Institute schools had been in existence an average of 11.5 years at the time of visitation, the others 26.5 years; see also Table 8).

Institute schools were also better able to reach the more resistant members of the child populations, the girls. They had a higher percentage of female registration (35.5 per cent of total enrollment in Institute schools as against 14.7 per cent in the other schools), and a higher percentage of girls in attendance were nominated for testing (24 per cent in Institute schools as against 3 per cent in the others; see Table 8).

Of the girls who were tested, those in Federal and State schools (n = 7) showed a mean of 23.71 on the group reading test; girls in Institute schools (n = 68) showed a mean of 31.25 (see Table 9). The difference, while not significant statistically, does favor the

Table 8. Differences between Federal-State (National Language) and Institute (Mother Language) Schools

Municipio	Adult Literacy[1]	Enroll-ment[2]	Attend-ance[3]	Female Enroll-ment[4]	Female Attend-ance[5]	Girls Nominated for Testing[6]
Total Sample						
Federal and State Schools	.037	.131	.608	.268	.628	.031
Institute Schools	.056	.172	.611	.341	.643	.240
Total	.045	.149	.609	.304	.637	.148
Chi-square	35.964	56.665	.016	16.269	.184	43.580
p.	.001	.001	NS	.001	NS	.001
Chenalho						
Federal and State Schools	.054	.169	.698	.269	.681	.065
Institute Schools	.076	.178	.538	.249	.652	.200
Total	.064	.173	.623	.259	.668	.124
Chi-square	9.231	.664	21.337	.426	.196	5.660
p.	.01	NS	.001	NS	NS	.02
Oxchuc						
Federal and State Schools	.046	.152	.700	.357	.626	.017
Institute Schools	.061	.206	.696	.371	.698	.234
Total	.053	.178	.698	.365	.667	.146
Chi-square	6.778	38.081	.028	.240	2.494	26.218
p.	.01	.001	NS	NS	NS	.001
Zinacantan						
Federal and State Schools	.016	.075	.389	.148	.534	.000
Institute Schools	.029	.118	.498	.395	.505	.308
Total	.019	.086	.433	.247	.516	.193
Chi-square	16.030	35.962	7.623	51.060	.130	11.816
p.	.001	.001	.01	.001	NS	.001

Table 8. (Cont.)

1. $\text{Adult Literacy} = \frac{\text{literate adults}}{\text{total population}}$

2. $\text{Enrollment} = \frac{\text{total school enrollment}}{\text{total population}}$

3. $\text{Attendance} = \frac{\text{attendance on day of testing}}{\text{total enrollment}}$

4. $\text{Female Enrollment} = \frac{\text{female enrollment}}{\text{total enrollment}}$

5. $\text{Female Attendance} = \frac{\text{female attendance on day of testing}}{\text{female enrollment}}$

6. $\text{Girls Nominated for Testing} = \frac{\text{girls nominated for testing}}{\text{female attendance}}$

Table 9. Differences between Sexes on the Group Reading Test

Language of Initial Reading Instruction	Boys		Girls
National Language (Federal and State Schools)			
Mean	42.39		23.71
SD	18.52		13.87
Range	0-81		2-51
Median	42.25		23.75
Number	158		7
Mother Language (Institute Schools)			
Mean	53.90		31.25
SD	18.57		26.63
Range	2-84		0-67
Median	56.00		38.70
Number	222		68
Total Sample			
Mean	49.11		30.55
SD	19.70		25.77
Range	0-84		0-67
Median	51.72		36.67
Number	380		75
t (between approaches)	4.61		1.163
p.	.001		NS
t (between sexes)		9.617	
p.		.001	

bilingual Institute schools (the inequality of n's of 7 and 68 should also be borne in mind). Boys in Federal and State schools (n = 158) showed a mean of 42.39 on the group reading test; in Institute schools boys averaged 53.90 (n = 222). This difference is significant at beyond the .001 level of probability (t = 4.61, df = 378). The difference between the overall means of boys (49.11 and of girls (30.55) is also significant at beyond the .001 level of probability (t = 9.617, df = 453).

It would have been desirable to distinguish between the effects of the language of instruction in the initial teaching of reading and teachers' ethnic identifications. To do this it would have been necessary to locate a sizeable group of schools in which local Indians taught in the national language and another group in which mestizos approached reading through the mother tongue. None of the latter and only two of the former were located, both in Chanalho. With a sample as limited as this, at best only a trend can be indicated; however, an examination of the data may throw some light on the subject (see Table 10).

The two Indian teachers who gave all reading instruction in Spanish were directors of the two State schools in Chenalho; the Federal schools in that municipio were staffed exclusively by mestizos. In the State schools the students showed a mean of 35.55 (n = 40) on the group reading test. For the Federal schools the mean was 28.85 (n = 26). In the bilingual Institute schools, with Indian teachers who approached reading through the mother tongue, the mean was 46.14 (n = 49). The difference between means in Federal and State schools

Table 10 Differences among Students of Indians who Taught Reading Only in the National Language and Two Other Groups of Teachers in Chenalho

Teachers	I Indian	II Mestizo	III Indian
Language of Initial Reading Instruction	National Language	National Language	Mother Language
Mean	35.55	28.85	46.14
SD	22.602	28.913	14.887
Range	0-81	2-65	14-73
Median	29.50	26.17	47.75
Number	40	26	49

t (I:II) = 1.626, df = 64,NS
t (I:III)= 2.621, df = 87, p .05

was not significant ($t = 1.626$); between State and Institute schools it was ($t = 2.621$, $p \quad .05$).

On the basis of this data it appears that while students learned to read with comprehension in the national language more effectively with teachers of their own ethnic background, they learned still more effectively when reading instruction was approached through the mother tongue.

Conclusion

The purpose of this study was to test the hypothesis, implicit in educational policies throughout the United States, that reading is best comprehended in the national language when it is first learned in that language by a student who speaks a different mother tongue. This hypothesis was not upheld by the data of this study. On the contrary, when youngsters who first learned to read in their mother tongue were compared with others who had received all instruction in the national language, a higher proportion of the former became literate in the national language and read in it with significantly greater comprehension.

CHAPTER VII

AN OVERVIEW

Summary of the Study

The purpose of this study was to compare two approaches to the teaching of reading in the national language to children of linguistic minorities. The hypothesis was that these children learn to read with greater comprehension in the national language when they receive all reading instruction in that language rather than when they first become literate in the mother tongue; this hypothesis is implicit in educational policies throughout the United States.

To test the hypothesis it was planned to evaluate the national language reading comprehension of students belonging to a linguistic minority, some of whom had received all reading instruction in the national language and some of whom had first learned to read in the mother tongue. No situation existed within the United States in which both approaches were followed on a scale large enough to allow adequate evaluation. The study was therefore conducted in three tribal settings in Mexico, where each of the tribes exhibited a differing attitude toward schooling.

Matched samples representing each of the two teaching approaches were selected within each of three *municipios* (tribal areas). A test of reading comprehension in Spanish was developed and administered to students in the selected schools, the reliability and validity of the instrument were established for the sample, and the test results were analyzed statistically. Another measure used to evaluate the hypothesis was the proportions of students designated by their teachers as literate in the national language. Chi-squares and an alanysis of variance were the principal statistical procedures used to evaluate the hypothesis.

When the proportions of students designated by their teachers as able to read with a comprehension in Spanish were compared in the overall sample by approach to reading instruction, the proportion of students who had first learned to read in the mother tongue was significantly higher (Chi-square = 53.135, p .001); differences favoring the bilingual approach existed within each of the municipios.

When scores on the group test of reading comprehension were compared, those who had become literate in the mother tongue prior to reading in Spanish scored significantly higher than the others (F = 14.122, p .01); significant differences in reading comprehension were also noted among the municipios (F = 10.881, p .01). The internal reliability of the instrument was demonstrated by the split-half method (r = .965, n = 455). Its validity was demonstrated both through its construction, for it used material common to the lives of Highland Maya children and followed the formats of several tests of reading comprehension currently in use in the United States; and statistically, by comparing it with three other indications of reading comprehension (r_1 = .492, r_2 = .651, r_3 = .572).

It was also shown that a significantly higher proportion of adults in hamlets served by bilingual schools became literate in the national language (Chi-square = 35.964, p .001), and that these schools were better able to reach the more resistant members of their communities, the girls.

The hypothesis of the study, that students who received all reading instruction in the national language would read with greater comprehension in that language than would those who first became literate in their mother tongue, did not stand up under the scrutiny of the data. On the contrary, it now appears that children of linguistic minorities learn to read with greater comprehension in the national language when they first become literate in the mother tongue.

Conclusions

The evidence of this study -- the higher proportion of literate students, the higher level of reading comprehension, the higher proportion of literate adults -- all point to the efficacy of approaching reading in the national language through the mother tongue. Children who learn to read this way learn one new skill, reading; the material they study, once read, has meaning. That meaning is essential to reading comprehension has been pointed out repeatedly (see, for example, Bruner 1957, 1958; Crosby 1959; Durrell 1962; Smith and Dechant 1961; Strickland 1958). When students in the bilingual Institute schools were told that a symbol had a certain sound (for example that "m" had the sound "mmm") they were shown a word or phrase with an accompanying picture, both of which had meaning for them. They were not shown a symbol and told a word which for them had no significance; they did not have to memorize a strange sound and a strange symbol and try to understand what this was all about from a teacher who might not have spoken their language, but who, in any case, explained by pointing and perhaps shouting and by encouraging imitation, rather than by a clear and rational explanation of something already half understood. We may theorize, based on the data of this study, that to learn only one new skill from a sea of material already understood is easier than to learn two new and different skills simultaneously.

It may be argued that while the findings of this study are applicable to members of isolated communities, they do not hold for groups in constant contact with the national language, groups such as urban linguistic minorities. The data of this study throws such an argument into question; the youngsters who lived in greatest contact with the national language, the Zinacantecans, while showing generally higher levels of reading comprehension than any other group, continued to show the usual superiority in the bilingual schools.

Indeed, the only people for whom exception might be made would be those who are highly prejudiced against bilingual education and might resist reading in the mother tongue. Such prejudice was indicated for parts of Africa when under British rule, when bilingual education was sometimes equated with inferior education for Africans, and when those who wished to attend British Universities had to receive their education in the all-English schools of the ruling class.

Once equality of education, beyond the initial teaching of reading, is guaranteed, local prejudices would probably die and exceptions from bilingual teaching be questionable. Evidence from the same British colonies indicates that even in prejudiced communities students receiving bilingual instruction did learn to read with greater comprehension in English than did those who were taught exclusively in the government's language (see, for example, Grieve and Taylor 1952; Thurlbeck 1934; Welsh 1934).

It might also be argued that where students learn to read with one system of sound transcription and switch into another, as from Spanish to English, or when they move from one alphabet to another, as from Hindi to English, their reading comprehension in the second language is hampered. This has been discredited by Gray, who showed that reading is essentially the same for all styles of transcription, including ideographs, and for all languages (1956:43-60); he did not examine whether it would take longer to master new sound-symbol correspondencies under such circumstances.

Teachers' ethnic orientations may also play a role in students' achievement of reading comprehension in the national language. During the course of this study it was observed that teachers who approached reading instruction through the mother tongue did differ somewhat from those who used the national language. There were differences in academic preparation and professional training, in mastery of the national and local languages, in sophistication in the national and local cultures, and, to a lesser degree, in attitudes toward students.

The teachers who approached reading through the mother tongue were not, as a group, as well trained as the others, their mastery of the national language was poorer, their general academic level lower, and their understanding of what schooling should be all about much more limited. However, they did have certain advantages which may have been reflected in the work of their students; they were themselves, of the local or a neighboring tribe, easily able to communicate in the vernacular when they chose to do so, and equipped with an innate understanding of many aspects of the local culture.

In favor of the all-Spanish teachers were their greater mastery of the national language, their generally higher levels of schooling, and that many of them had received training in teaching methods and at least some orientation toward educational theory. To their disadvantage were, for some, more negative attitudes toward the local communities, for others, limited ability to communicate in the vernacular, for others, little understanding of the local culture, and for some, a combination of all three.

Both groups of teachers were alike in respect to the content they covered once students had begun to read; it was not observed that one group was superior to the other in overall teaching techniques.

In order to unravel the relative effects of teachers' ethnic orientations including ability to communicate in the vernacular, and the language of instruction in the initial teaching of reading, it would have been disirable to compare schools in which mestizos taught in the vernacular with schools in which Indians taught in Spanish. None of the former and only two of the latter were located during the course of this study. Students of the two Indian teachers who used Spanish exclusively for reading instruction read with greater comprehension than did their peers studying under mestizos; however, they read with significantly less comprehension than those who first learned to read in the mother language. Based on this evidence it appears that teachers' ethnic orientations and attitudes do influence, but not outweigh, the language of instruction in the initial teaching of reading as factors in reading comprehension in the national language. This question merits further study.

Implications for Further Study

There are implications for at least three further studies arising from this one. They include replication, a further attempt to unravel relative weights of teachers' attitudes and the language of instruction as factors in reading comprehension, and an appraisal of the cognitive development of Highland Indian children, especially those of Zinacantan and Chamula.

Replication studies are always in order, both with groups similar to the original, and with others. While it is this investigator's impression that the results of this study are generally applicable, and effort was made toward this end by conducting the study among three tribal groups known to have differing attitudes toward schooling, the sub-groups did have many commonalities of language and culture. Whether or not the results of this study would stand for members of culturally very different groups is worthy of investigation. Certainly a replication among other linguistic minorities is indicated. It is further indicated that replications be conducted not only among isolated peoples, but also among minorities which experience much contact with the national language. For example, it would be desirable to conduct and evaluate an experimental program with Spanish-speaking children in New York, the Southwest, for California, to determine whether the findings of this study hold for groups which vary in their cohesiveness and which have greater contact with the dominant culture.

The design of this study should be easy to replicate; it is a quite common design (Campbell and Stanly 1963), involving the selection of matched samples, the selection or creation of a test instrument, the administration of that instrument, an appraisal of the results which relies heavily on statistical analysis, and a discussion of possible causal factors. The principal instrument used for the study was a group test of reading comprehension in the national language. In any study care should be taken to insure that the subject matter of the test instrument be meaningful to the subjects.

Another study arising from this one would be an effort to examine the principal and secondary factors leading to reading comprehension in the national language. How much does the language of instruction, as opposed to teachers' ethnic orientations, affect reading comprehension? How much do teachers' attitudes influence their students' work? Is it necessary that a teacher be able to communicate extensively and subtly with beginning students for them to learn effectively, or is instructional method the crucial factor? In the case of reading instruction in the national language for members of linguistic minorities, does comprehension in the national language depend more on the language of initial teaching or on relationships between teacher and students? To restate this question in terms receiving much attention in the United States, would a teacher less skilled, less schooled, less understanding of educational theory, less versed in subtleties of teaching method, be more effective with minority children in beginning grades when he himself is of their background and only sufficiently skilled in the dominant culture to afford them some initial entree into it; or is a well educated, well trained, kindly but culturally naive, teacher more effective? This question merits further investigation.

A third study growing out of this one would be an evaluation of this investigator's impression that Highland Maya Children, especially those of Zinacantan and Chamula, are exceptionally bright at learning school tasks. If this be so, what aspects of the culture create the greater aptitude? Does the key lie in approaches to child rearing? Is it in the degree of contact with the dominant culture? Is it a cultural attitude toward learning, exploration, and manipulation of the environment? Does it extend to greater aptitude for the type of abstract reasoning involved in our more advanced sciences? These questions all suggest further investigation.

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APPENDICES

APPENDIX A

GUIDE FOR TEACHERS' INTERVIEWS

SCHOOL DATA

School system____________________ Paraje__________________________

School building. type (inc. walls)______________________________

roof________________________ floor____________________________

number and size of windows per classroom____________________

number of classrooms__________ number of classes______________

approximate classroom dimensions______________________________

students' furniture____

____

teacher's furniture____

____

Other facilities: recreation____________________________________

____

sanitation____

workshops____

agriculture____

other____

____

Educational supplies in evidence

Frequency of supervisory visits

TEACHER'S QUESTIONNAIRE

1. School System.______________________________.

2. Hamlet.______________.3. Municipio.______________.

4. Population.______________.5. No. Households.______________.

6. Climate, general.______________.Test Day.______________.

7. Economy

    a. crops

    b. steady diet

    c. occasional foods (frequency)

    d. source of cash income

8. Health

    a. personal cleanliness (bathing)

    b. cleanliness of homes

    c. source and condition of water

    d. prevalence of insects

    e. chronic diseases (distribution)

    f. current diseases

g. infant mortality

h. average age of adult deaths

9. Extent of contact with Ladinos

a. Ladinos resident in or near the hamlet (no. and role)

b. Ladino visits to hamlet during past year (no., nature of contact, duration)

c. Indian visits to Las Casas during past year (frequencies)

Men______________________________.

Boys______________________________.

Women______________________________.

Girls______________________________.

d. Knowledge of Spanish among Indians

	understand		speak		read		write	
	no.	%	no.	%	no.	%	no.	%
men								
women								
boys								
girls								

e. Literate persons in the community

	no.	%	role
Indians			
Ladinos			

10. The School

a. years in the community______________________.

b. school building, when built__________type__________.

size__________no. rooms__________.

c. no. teachers, Indian______________Ladino__________.

d. enrollment______________________________.

e. average attendance

	no.	%	no.	%
boys				
girls				

11. Informant, name______________________________.

a. role______________________________.

b. attitude______________________________.

Teacher-Pupil Data

Teacher's name________________________________

rade(s)________ **Age**_______ **Sex**______ Paraje____________

Indian?________ **Salary**_________ Years of teaching__________

Training: Pre-service____________________________

In-service______________________________

Class size:	registered	present	reading test	% tested
boys				
girls				
total				

ge distribution	absentees teacher's est.	present SD	present $\bar{X}$	present Range	tested SD	tested $\bar{X}$	tested Range
boys							
girls							
total							
Daily schedule							

Monthly-yearly language curriculum

Indications of teacher autonomy

Pupil promotion, basis for

% promoted last year

Reporting of pupil progress

Teacher's attitudes:

¿Cómo son los niños?

¿Es fácil o difícil trabajar con ellos?

¿Se siente que está logrando lo que quiere lograr?

¿Le gusta trabajar en esta escuela o preferiría trabajar en otra?

Observation of teaching methods . . . . . . and pupil participation:

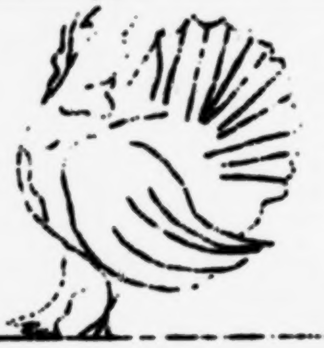
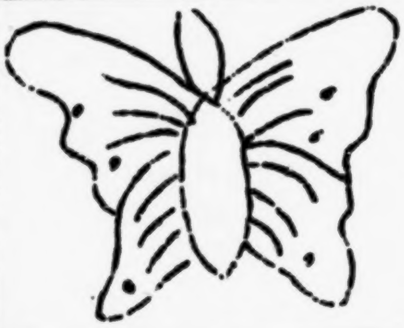
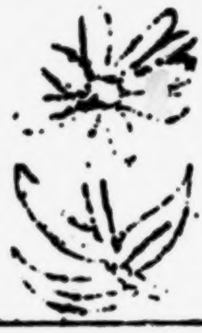
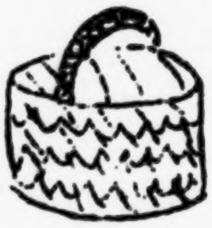
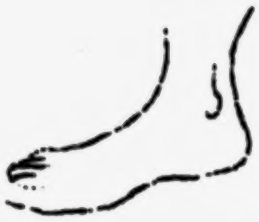
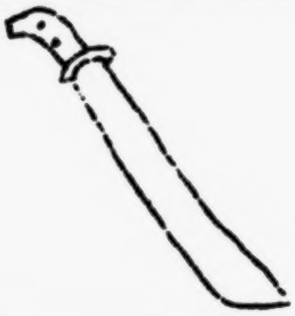
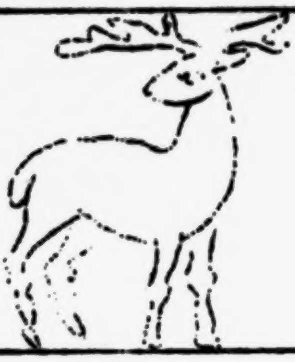
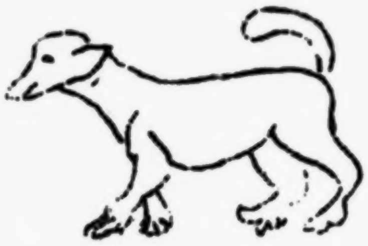
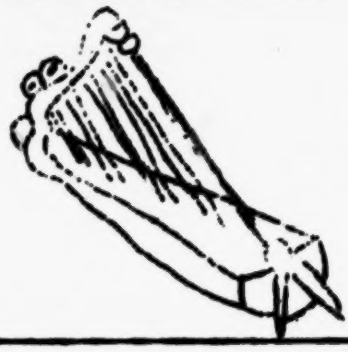
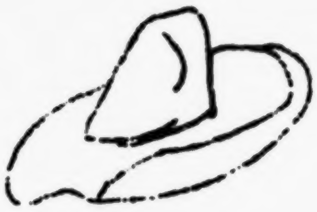
APPENDIX B

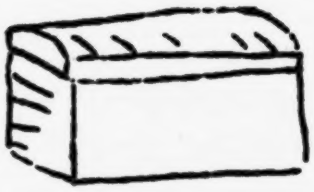
THE GROUP TEST OF READING COMPREHENSION

Nombre y Apellidos ______________________________.

Grado______. Edad ______. Sexo_______. Paraje____________.

En los siguientes cuadros tacha la palabra o frase correcta:

 gallo [illegible] guardar	 marsupial muñeca mariposa
 fumar flor olor	 comal canasta campestre
 pie pieza peine	 malo macho machete
 verdadero vergüenza venado	 palo perro pero
 ruído arpa marimba	 sombra sombrero señor



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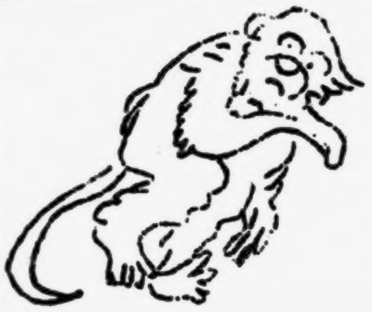

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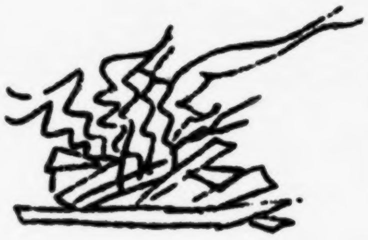

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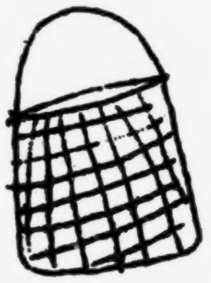

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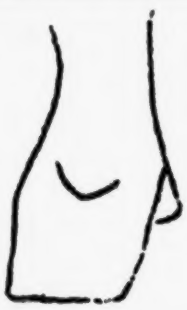

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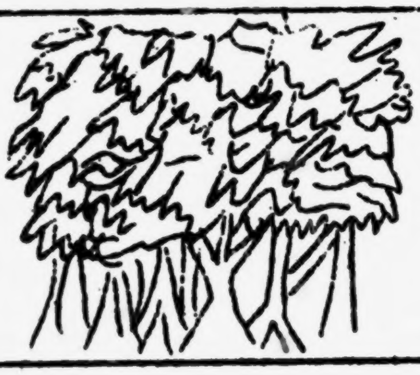

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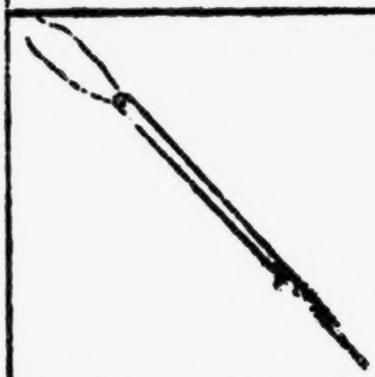

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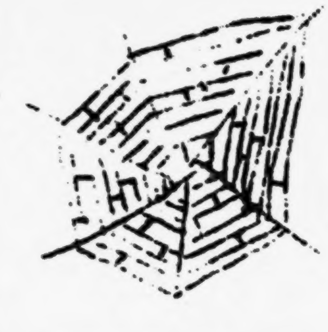

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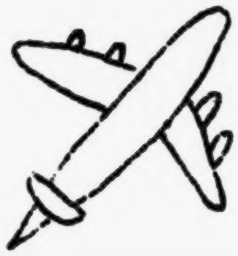

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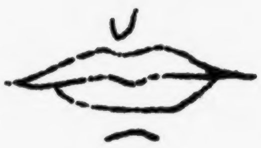

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ojo
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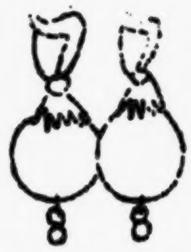
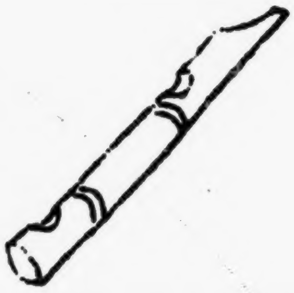
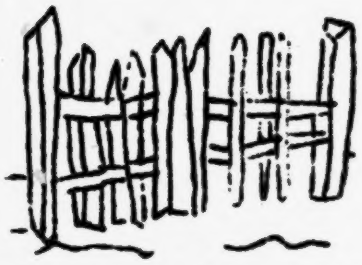


aretes
arriba
anillo



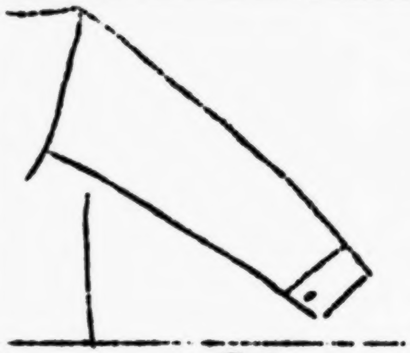
flautista
trompeta
flauta



rojo

reja

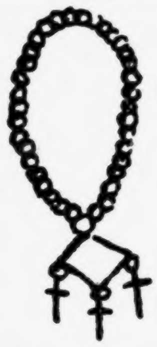
red



mango

manga

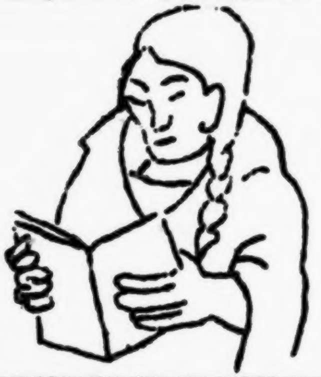
brazo



color

collar

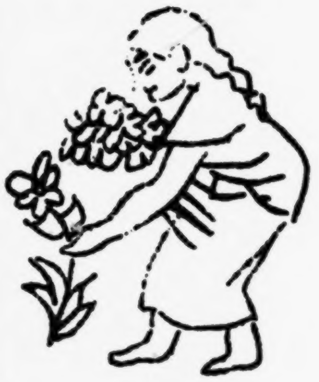
broche



la mujer cree

la mujer levanta

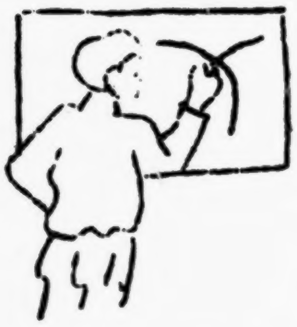
la mujer lee



la mujer está en una junta

la mujer junta flores

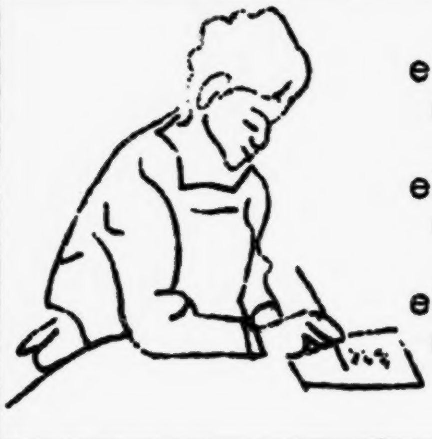
la mujer jala el vestido



el maestro distrae

el maestro **dibuja**

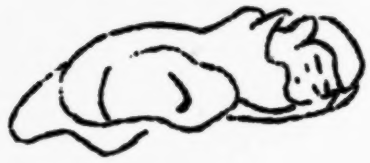
el maestro deja



el hombre espanta

el hombre estira

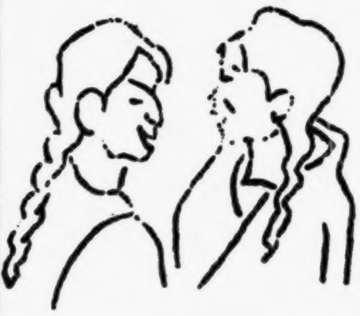
el hombre escribe



el niño duerme

el niño firme

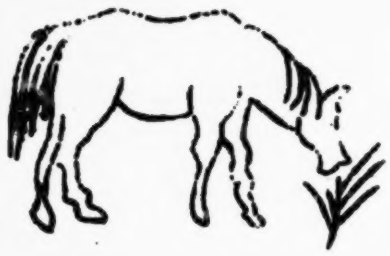
el niño dice



las mujeres pasan

las mujeres platican

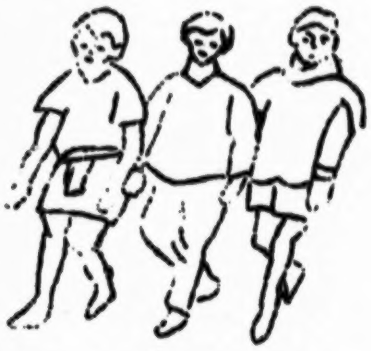
las mujeres patinan



el caballo come

el caballo bebe

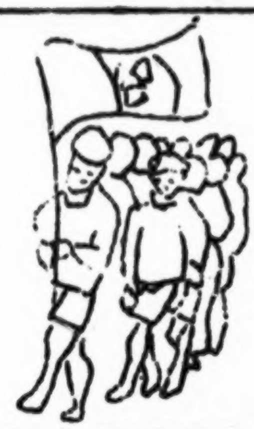
el caballo camina



los hombres caminan

los hombres cantan

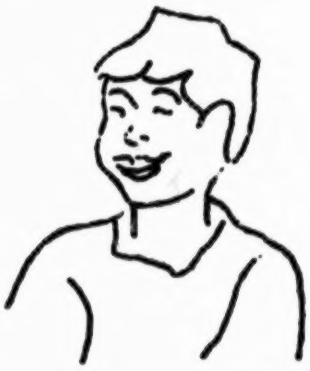
los hombres se paran



los muchachos desfilan

los muchachos afilan

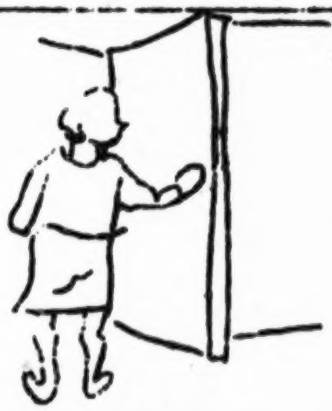
los muchachos destilan



el niño rueda

el niño reza

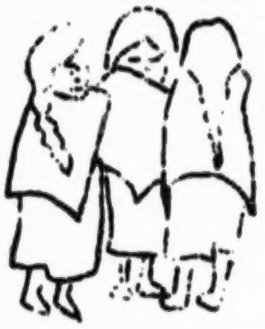
el niño rie



el niño arranca la puerta

el niño abre la puerta

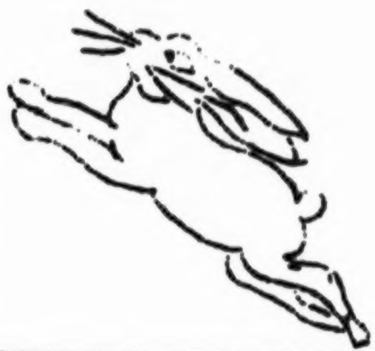
el niño raya la puerta



las niñas se portan

las niña se peinan

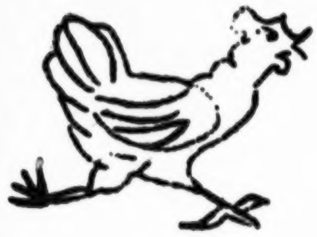
las niñas se paran



el conejo cae

el conejo baila

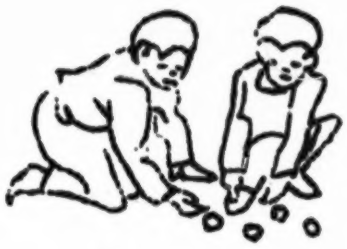
el conejo huye



la gallina corre

la gallina borra

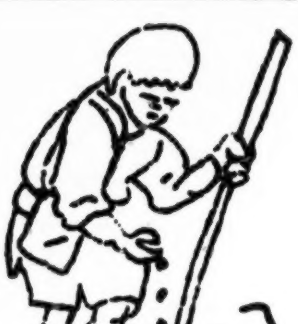
la gallina come



los niños pierden canicas

los niños juegan canicas

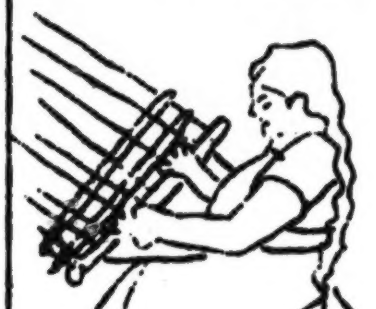
los niños apartan canicas



el hombre siempre

el hombre siembra

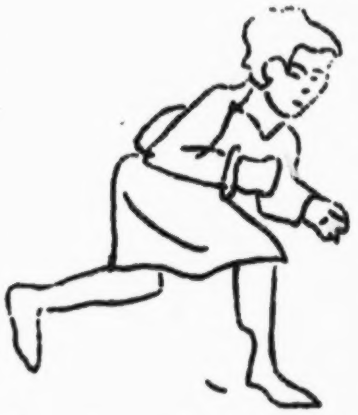
el hombre siente



la mujer teje

la mujer tira

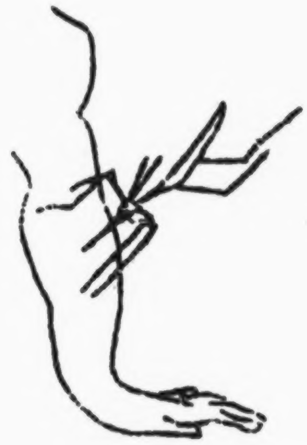
la mujer baja



el niño se viste

el niño se viene

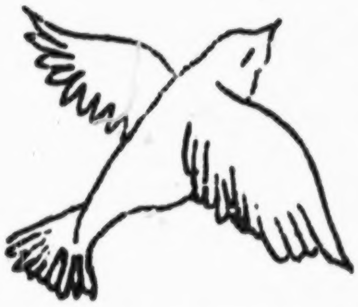
el niño se detiene



el mosquito chilla

el mosquito chupa

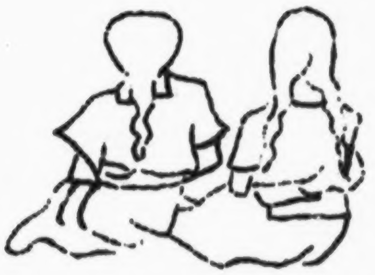
el mosquito chapotes



el pájaro muere

el pájaro vuela

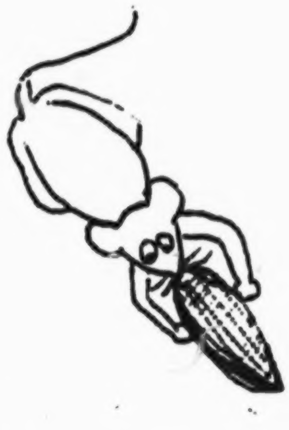
el pájaro vuelve



las mujeres se miran

las mujeres se asean

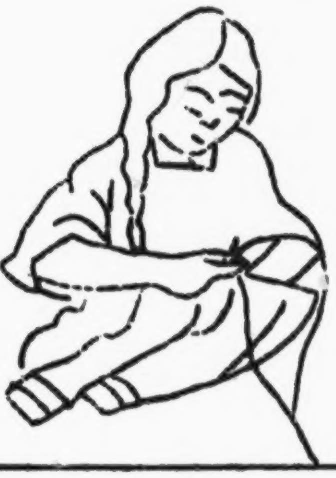
las mujeres se sientan



la rata gima la mazorca

la rata gira la mazorca

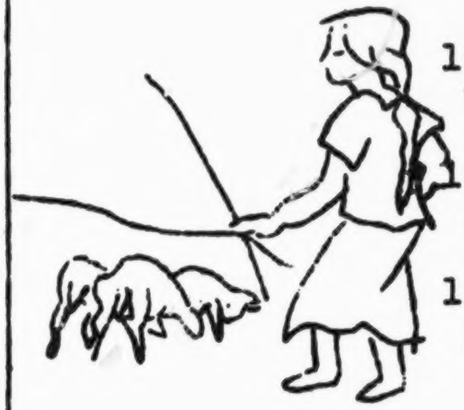
la rata jala la mazorca



la muchacha cose

la muchacha cocina

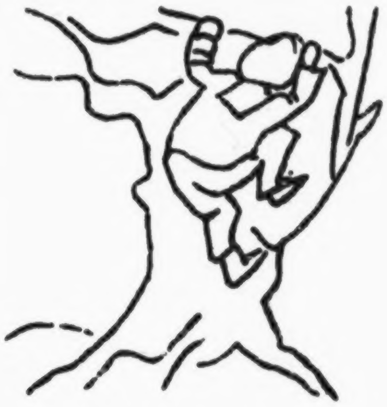
la muchacha plancha



la muchacha trae leña

la muchacha platica

la muchacha pastorea



el niño sale del árbol

el niño sube al árbol

el niño sabe del árbol

En los siguientes cuadros tacha la palabra opuesta:

sí	no comió nunca	primero	último segundo todos
bueno	alto malo bajo	sumar	dar restar perder
hermana	hermano primo niña	pesado	niño bolsa ligero
noche	papel día oscuridad	lleno	gordo chico vacío
este	oeste norte sur	atrás	lado enfrente enmedio
luz	mañana sol oscuridad	más	tomar muchos menos

Tacha el nombre que sea de animal: goma, correr, gato, casa.

Escribe las dos letras que faltan: agua

ag______.

Escribe esta palabra: pero ______________________.

Tacha este número: 3.

Pon un cero después del 4_______.

Escribe una cruz sobre el número dos: 6 8 3 2 .

Tacha todas las letras que hay en esta línea: 8 R 9 L 6 4.

Escribe la letra que falta: niño

niñ______.

Escribe una palabra que empiece con m: ____________________.

Tacha la letra que sobra en gasto para que diga gato: gasto

Tacha el nombre del animal que es más chico:

perro, ratón, caballo, venado.

Escribe una palabra que empiece con t: ____________________.

En los siguientes cuadros hay un cuento a la izquierda y unas frases a la derecha. Tacha la palabra (sí) cuando la frase a la derecha es correcta según lo que lees en el cuento. Tacha la palabra (no) cuando no es correcta.

El fuego nos calienta

El fuego nos sirve para cocinar.

Es sabroso sentarse junto al fuego en las noches frías y oír cuentos.

(sí) (no) Trata del fuego.
(sí) (no) Lo usamos para hacer la comida.

El pájaro hizo un nido. Hizo su nido en un árbol.

Ahora el pájaro se echa en el nido. Se echa sobre los huevos. Pronto nacerán unos pajaritos.

(sí) (no) El pájaro se echa en el agua.
(sí) (no) El nido está en la casa
(sí) (no) El pájaro hizo un nido.
(sí) (no) No nacerán pajaritos.

Las ratas son animales que hacen daño.

Las ratas comen el maíz que sembramos.

Tratamos de que no entren en las milpas.

(sí) (no) Trata de ratas.
(sí) (no) Comen nuestras siembras.
(sí) (no) Son buenas.

Comemos maíz. Necesitamos el maíz. Preparamos la tierra. Plantamos el maíz. Guardamos el maíz para que las ratas no se lo coman. El maíz crece grande.

Ya está listo. Recogemos la mazorca. Guardamos la mazorca. Ahora tenemos maíz para comer.

(sí) (no) El maíz es malo.
(sí) (no) Lo cultivamos.
(sí) (no) Lavamos maíz.
(sí) (no) Lo tiramos.

Tenemos una gallina. La gallina tiene pollitos. Todos los días le damos de comer y le damos agua. La gallina nos da huevos.

Una noche un animal malo se llevó un pollito. Todos estamos tristes.

(sí) (no) Tenemos una gallina.
(sí) (no) Tiene pollitos.
(sí) (no) Le pegamos.
(sí) (no) Nos da agua.
(sí) (no) El animal se llevó la gallina.

Algunas veces hay nubes en el cielo. Hay nubes blancas y nubes amarillas. Hay nubes rojas y nubes azules. Algunas veces hay nubes grandes y negras. Algunas veces las nubes traen lluvia.

(sí) (no) Hay nubes negras.
(sí) (no) Traen agua.
(sí) (no) Las nubes siempre traen lluvia.

El sol sale. Es de día. El sol nos da luz y calor. En el día trabajamos. En el día vamos a la escuela.

Cuando el sol se pone se hace de noche. Algunas veces vemos la luna. Algunas veces vemos las estrellas. Algunas veces no. Dormimos por la noche.

(sí) (no) El sol sale de noche.
(sí) (no) Nos da luz y calor.
(sí) (no) Trabajamos en el día.
(sí) (no) En la noche vemos el sol.
(sí) (no) Por la noche dormimos.

El agua nos ayuda a vivir. Bebmos agua. La usamos para lavar nuestra ropa. La llevamos a la casa en cántaros. Conservamos el agua en cántaros. Nos bañamos con agua. La necesitamos.

(sí) (no) El agua es útil.
(sí) (no) La usamos para lavar ropa.
(sí) (no) La llevamos en cántaros.

Un niño caminaba por un campo. Llegó hasta un árbol. El árbol tenía fruta. El quería la fruta. Traté de alcanzarla. La fruta estaba muy alta. Saltó y saltó, pero no la pudo alcanzar. Se subió al árbol. Se subió a una rama. Trató de alcanzar la fruta. La rama se rompió. Se cayó. Se lastimó todo el cuerpo.

(sí) (no) Trata de un animal.

(sí) (no) Caminaba sobre el agua

(sí) (no) Vió mucho dinero.

(sí) (no) Trató de alcanzar la fruta.

(sí) (no) Después compró la fruta.

(sí) (no) Se puso triste.

APPENDIX C

THE INDIVIDUALIZED TEST OF READING COMPREHENSION

--¿De dónde eres, Tomás?

--Yo soy de Oxchuc, dice Tomás.

¿De dónde es Tomás?

¿Es Tomás de Oxchuc?

¿Es Tomás de Huistán?

****

Pedro está en su casa.

Su casa tiene techo de teja.

El patio de su casa está limpio porque barre todos los días.

Pedro y su mujer están contentos.

Tienen una casa bonita y limpia.

¿El techo es de paja?

¿La casa está limpia?

¿La casa está fea?

1 (Zinacantan)

--¿De dónde eres, Lorenzo?

--Yo soy de Zinacantan, dice Lorenzo.

¿De dónde es Lorenzo?

¿Es Lorenzo de Zinacantan?

¿Es Lorenzo de Chamula?

****

Pedro está en su casa.

Su casa tiene techo de teja.

El patio de su casa está limpio porque barre todos los días.

Pedro y su mujer están contentos.

Tienen una casa bonita y limpia.

¿El techo es de paja?

¿La casa está limpia?

¿La casa está fea?

2a

Domingo es hijo de Pedro. Al levantarse, dice:

--Buenos días, papá.

--Buenos días, hijo, contesta el papá.

--Buenos días, mamá.

--Buenos días, Domingo, contesta la mamá.

Lo primero que hace Domingo es ir por agua. Hace tres viajes. Se lava las manos, la cara, y los pies.

¿Domingo es el padre de Pedro?

¿Saluda a su papá y su mamá?

¿Hace cinco viajes por agua?

2b

Amanece. El sol sale. Son las seis de la mañana.

El niño Mariano se levanta. Se lava la cara y las manos. Barre el patio, trae agua, y da de comer a los animales.

Después se va a la escuela. Asiste todos los días. Ya sabe leer bien. Su papá está contento y lo quiere mucho.

--Mi hijo aprenderá muchas cosas que yo no sé, dice su papá.

¿Mariano se levanta a las seis?

¿Mariano es muy flojo?

¿Su papá está enojado?

Salvador y Sebastián platican.

--Yo tengo ocho carneros, cuatro negros y cuatro blancos, dice Salvador. Mi hermanita los cuida todo el día. Cuando tarda en llegar a la casa mi mamá va por ella.

--Mi papá tiene diez carneros, dice Sebastián. Cuatro son de color café y seis son pintos de blanco y negro. De los pintos, dos son carneritos. Tú no tienes carneritos.

--Sí, tengo carneritos, dice Salvador. Yo mismo los cuido. Los llevo adonde hay pasto verde para que coman. Los cuido mucho porque dan lana para los vestidos.

¿La hermanita de Salvador cuida sus carneros?

¿Salvador tiene carneros de color café?

¿Los dos muchachos tienen carneritos?

¿Salvador no cuida a sus carneritos?

¿Los carneros no son animales útiles?

Cuentan que las peñas y las cuevas eran las casas de los antiguos. Pero una vez llovió tanto, noche y día, que la tierra desapareció y quedó solamente pura agua por todos lados.

No se salvaron todos los hombres. Se salvaron unicamente los que tenían cofres grandes, porque se metieron dentro y los cofres flotaban sobre el agua.

Los que se salvaron se convirtieron en pájaros. Así nos explicamos porque hay diferentes clases de pájaros.

¿Los antiguos vivían en casas como la gente de ahora?

¿La tierra desapareció abajo del agua?

¿Se salvaron todas las mujeres?

¿Los cofres grandes flotaban sobre el agua?

¿Los hombres que se salvaron volvieron pájaros?

Pasó una vez que un niño quedó huérfano. Un día estaba sentado a la orilla del camino, llorando, cuando pasó un ladino.

--¿Por qué lloras? preguntó. Cuando el niño dijo que era huérfano, el ladino se lo llevó a su casa, en donde lo crió.

Cuando fue ya grande el ladino le dijo:

--Ve a cuidar la milpa y después te llevaré la comida.

El muchacho se fue pero el ladino no llevó el almuerzo ni la comida. Ya tenía mucha hambre y mucha sed, y entonces comenzó a pensar en qué forma podía satisfacerlas.

Dio dos brincos y, al tercero, empezó a levantarse del suelo poco a poco; así se fue volando hasta un lugar en donde encontró agua y comida. Desde entonces siguió volando y ahora se llama Zopilote Rey.

¿El niño tenía mamá y papá?

¿El ladino crió al niño?

El ladino mandó al muchacho a cuidar sus caballos?

¿El ladino le llevó su comida?

¿El niño volvió conejo?

En cierta ocasión se encontraron en el monte el conejo y el venado. El venado no tenía sombrero y el conejo sí.

--Mira, hermano, préstame tu sombrero porque yo no tengo, dijo el venado.

--No, contestó el conejo, porque me quedo sin sombrero.

--Tú no puedes andar con ese sombrero porque eres muy chiquito, respondió el venado; en cambio yo soy grande y puedo andar en el monte sin que nadie me agarre.

El conejo se convenció por este razonamiento y entregó su sombrero al venado.

Cuando el venado tuvo el sombrero, huyó para no volver más, y el conejo se quedó para siempre sin sombrero.

¿El conejo quiso el sombrero del venado?
¿El venado dijo que el sombrero era muy grande para el conejo?
¿El conejo dijo que nadie le podía agarrar?
¿El venado agarró el sombrero del conejo?
¿El venado regresó el sombrero?

En el año de 1528 fue conquistado el gran reino de Chiapa por el capitán Diego de Mazariegos. Los españoles hicieron a los indígenas esclavos, y los hicieron trabajar las tierras, las minas, los hicieron construir grandes palacios y los hicieron cargar los productos del campo a las ciudades para beneficio de los españoles. Trabajaron los indígenas sin recibir ninguna recompensa, pero sí recibieron maltratos, azotes, fuertes castigos como si hubieron sido animales.

Pero un cura comprendió la triste situación de los indígenas y se puso a ayudarlos. Los enseñó a cultivar el algodón, a fabricar ladrillo y teja, y muchas otras cosas que fueron de gran utilidad para los indígenas. Pero les enseñó algo más grande y más importante; les enseñó a leer y escribir.

También les enseñó el camino hacia la libertad. En la noche del 15 de septiembre de 1810 el Padre Don Miguel Hidalgo inició la guerra en contra de los españoles para la independencia de México. Por eso recordamos el 16 de Septiembre, porque desde entonces los mexicanos luchan por una completa independencia y libertad.

¿Los españoles ayudaron a los indígenas?
¿El cura maltrató a los campesinos?
¿El cura enseñó muchas cosas útiles a los indígenas?
¿En el 16 de Septiembre recordamos al Padre Hidalgo?
¿Ahora todos los mexicanos tienen su libertad completa?